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THE MEDITERRANEAN  
PILOT. VOL II.  
FIFTH EDITION.  
1916.



# CAUTION WHEN APPROACHING BRITISH PORTS.

*(To be inserted inside cover of all Sailing Directions.)*

## PART I.—CLOSING OF PORTS.

(1) My Lords Commissioners of the Admiralty having taken into consideration the fact that it may be necessary to forbid all entrance to certain ports of the Empire, this is to give Notice that on approaching the shores of the United Kingdom, or any port of the British Empire, a sharp lookout should be kept for the signals described in the following paragraph, and for the vessels mentioned in paragraph (4), Part II., of this Notice, and the distinguishing and other signals made by them. In the event of such signals being displayed, the port should be approached with great caution, as it may be apprehended that obstructions may exist.

(2) If entrance to a port is prohibited, three *red* vertical lights by night, or three *red* vertical balls by day, will be exhibited in some conspicuous position in or near to its approach, which signals will also be shown by the vessels indicated in paragraph (4), Part II., of this Notice.

If these signals are displayed, vessels must either proceed to the position marked "Examination Anchorage" on the Admiralty Charts and anchor there, or keep the sea.

## PART II.—EXAMINATION SERVICE.

(3) Under certain circumstances, it may become necessary to take special measures to examine vessels desiring to enter the ports or localities at home or abroad, referred to in Notices to Mariners No. 1 of 1916 and subsequent years.

(4) In such case, vessels carrying the distinguishing flags or lights mentioned in paragraph (6) will be charged with the duty of examining ships which desire to enter the ports and of allotting positions in which they shall anchor. If Government vessels, or vessels belonging to the local port authority, are found patrolling in the offing, merchant vessels are advised to communicate with such vessels with a view to obtaining information as to the course on which they should approach the Examination Anchorage. Such communication will not be necessary in cases where the pilot on board has already received this information from the local authorities.

(5) As the institution of the Examination Service at any port will never be publicly advertised, especial care should be taken in approaching the ports, by day or night, to keep a sharp lookout for any vessel carrying the flags or lights mentioned in paragraph (6), and to be ready to "bring to" at once when hailed by her or warned by the firing of a gun or sound rocket.

In entering by night serious delay and risk will be avoided if four efficient all round lamps, two *red* and two *white*, are kept available for use.

(6) By day the distinguishing flags of the Examination Steamer will be a special flag (white and red horizontal surrounded by a blue border) and a blue ensign.

Also, three *red* vertical balls if the port is closed.

By night the steamer will carry: (a) Three *red* vertical lights if the port is closed; (b) three *white* vertical lights if the port is open.

The above lights will be carried in addition to the ordinary navigation lights, and will show an unbroken light around the horizon.

(7) Masters are warned that, when approaching a British port where the Examination Service is in force, they must have the distinguishing signal of their vessel ready to hoist immediately the Examination Steamer makes the signal.

(8) Masters are warned that, before attempting to enter any of these ports when the Examination Service is in force, they must in their own interests strictly obey all instructions as to entry given to them by the Examination Steamer. In the absence of any instructions from the Examination Steamer they must proceed to the position marked "Examination Anchorage" on the Admiralty Charts, and anchor there, or keep the sea.

Whilst at anchor in the Examination Anchorage, Masters are warned that they must not lower any boats (except to avoid accident), communicate with the shore, work cables, move the ship, or permit anyone to leave the ship, without permission from the Examination Steamer.

(9) In case of fog, Masters of vessels are enjoined to use the utmost care, and the Examination Steamer should be approached with caution.

(10) Merchant vessels approaching British ports are specially cautioned against making use of searchlights or other lights, either by day or night: the use of them will be strictly prohibited.

(11) The pilots of all vessels are acquainted with the regulations to be followed.

(To face Cautionary Notice in all Sailing Directions.)

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NOTATIONS OF SUPPLEMENTS AND ANNUAL  
SUMMARIES OF NOTICES TO MARINERS  
RELATING TO THIS BOOK.

To be filled in by Navigating Officer.

[In Chart Dépôts the two first columns are alone to be filled up.]

Title.	Date of Publication and Number.	Whether pasted in or noted in Margins of Book, and Date of each Correction.





# NOTICE.

## HYDROGRAPHIC DEPARTMENT, ADMIRALTY.

Early in each year the information affecting this book, which has been published during the preceding year in the Admiralty Notices to Mariners, is compiled and issued as a separate publication. If a Supplement has been issued during the year, this publication will only include Notices issued since the date of the Supplement. Mariners are advised to procure copies of these publications. They can be obtained gratuitously from the Admiralty Agent or Sub-Agents for the sale of charts on presentation of the coupons on the next page, either personally or by letter. In the latter case the cost of postage must be enclosed.

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(5) to

MEDITERRANEAN PILOT,  
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(4) to

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VOL. II., 1916.



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Supplement to MARINER'S GUIDE Vol. II, 1916	Supplement to MARINER'S GUIDE Vol. II, 1916	Supplement to MARINER'S GUIDE Vol. II, 1916



Summary of Notices to Mariners  
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Summary of Notices to Mariners  
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*g<sup>t</sup>. Brit. H<sup>o</sup>. de<sup>pt</sup>*

# THE MEDITERRANEAN PILOT,

VOL. II.,

COMPRISING  
THE SOUTH COAST OF FRANCE, THE ISLAND OF  
CORSICA, AND THE WEST AND SOUTH COASTS  
OF ITALY FROM THE FRENCH FRONTIER TO  
CAPO SANTA MARIA DI LEUCA, INCLUDING THE  
TUSCAN ARCHIPELAGO.

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FIFTH EDITION, 1916.

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**ALL BEARINGS ARE TRUE.**

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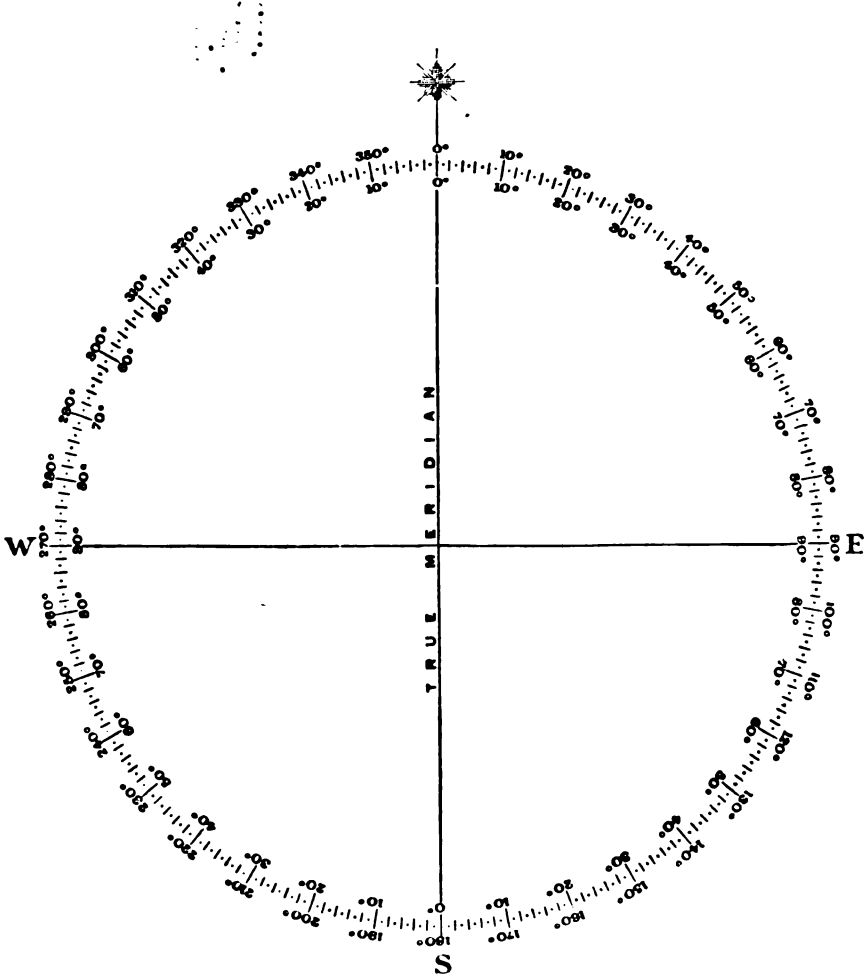
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# TRUE BEARINGS.

Diagram to facilitate the conversion of True Bearings expressed in degrees of the circle from  $0^{\circ}$  to  $360^{\circ}$  into True Bearings expressed in degrees of the quadrant from  $0^{\circ}$  to  $90^{\circ}$ .





## ADVERTISEMENT TO FIFTH EDITION.

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The *Mediterranean Pilot*, Vol. II., contains sailing directions for the south coast of France, the Island of Corsica, and the west and south coasts of Italy from the French frontier to Capo Santa Maria di Leuca, including the Tuscan archipelago.

The information has been chiefly derived from French and Italian Government surveys, and includes the latest received by the Hydrographic Department.

This edition has been prepared by Commander H. S. Penn, R.N. All bearings are true, and in degrees from 0° (North) to 360°, measured clockwise.

All details of lights and fog signals have been omitted; for these the Admiralty list of lights must be consulted.

Mariners and others are invited, in the interests of navigation, to forward to the Hydrographer, Admiralty, London, S.W., any information that may come under their notice, which would be useful for the correction of the charts and other hydrographic publications issued by the British Admiralty; early advice as to newly discovered dangers, the establishment of or changes in any aids to navigation, is specially requested.

Copies of a form (H. 102) on which to render information can be obtained gratis from the Admiralty chart agent,

**Mr. J. D. Potter,**  
145, Minories, London, E.C.,

or from any of his sub-agents in Great Britain and abroad.

By the publication of this volume, the fourth edition of *Mediterranean Pilot*, Vol. II., Revised Supplement (2), 1913, and all Notices to Mariners up to and including No. 948 of 1916, relating to that work, are cancelled.

**J. F. PARRY,**  
*Rear Admiral,*  
*and Hydrographer.*

*Hydrographic Department,*  
*Admiralty, London,*  
*26th August, 1916.*

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     Parte II. Sulle coste de Mare Mediterraneo, &c., 1915.
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GLOSSARIES OF WORDS OCCURRING IN THE CHARTS AND  
SAILING DIRECTIONS.

FRENCH TERMS.

French.	English.	French.	English.
Aiguille -	Needle	Canot de sauvetage -	Lifeboat
Aimanté, e -	Magnetic	Cap - - -	Cape, headland
Algue, Algæ -	Sea-weed	Chaine - - -	Chain, ridge of
Amarre - - -	Mooring		mountains, har-
Anse - - -	Bay, creek		bour boom
Appontement -	Pier, jetty	Chaland - - -	Lighter, barge
Argile - - -	Clay	Chapelle - - -	Chapel
Arraisonner -	To inform whence, or where a vessel goes.	Charbon - - -	Coal
		Chasse - - -	A rapid discharge of water to clear a channel.
Atterissage -	Making the land	Château - - -	Castle
Avant port -	Outer harbour	Chaussée - - -	Causeway
Azur - - -	Blue	Chemin de fer -	Railway
		Cheminée - - -	Chimney
Babord - - -	Port	Chenal - - -	Channel
Baie - - -	Bay, gulf	Cloche - - -	Bell
Bains - - -	Baths, bathing estab- lishment	Clocher - - -	Steeple
		Coffre - - -	Mooring buoy
Baleinière -	Whale boat	Col - - -	Neck, mountain pass
Balisage - -	Beaconage	Colline - - -	Hill
Balise - - -	Beacon	Compas - - -	Compass
Banc - - -	Bank	Coque - - -	Hull
Barre - - -	Bar	Coquilles - -	Shells
Basse - - -	Shoal	Côte - - -	Coast
Basse mer -	Low water	Courant - - -	Current, stream
Bassin - - -	Basin, dock	Couvent - - -	Convent
Bassin à flot -	Wet basin or dock	Crête - - -	Ridge, crest of mountains
Bassin d'échouage	Tidal basin where vessels take the ground	Crique - - -	Creek
		Crue - - -	Freshet, flood
Bassin de redoub	Dry dock		
Bassin de remisage	Repairing basin	Debarcadère -	Wharf, landing place
Bâtiment - -	Ship, vessel	Declinaison mag- netique -	Magnetic declination or variation
Batterie - -	Battery		
Blanc - - -	White	Detroit - - -	Strait, narrow
Bleu, e - - -	Blue	Digue - - -	Dike, mole
Bouche - - -	Mouth of river or strait	Douane - - -	Custom house
Bouée - - -	Buoy	Dur - - -	Hard
Bouée à cloche	Bell-buoy		
Bouée à sifflet	Whistle-buoy		
Bouée lumineuse	Light-buoy		
Boussole - -	Compass	Échelle - - -	Scale
Brouillard -	Fog, mist	Échelle de marée	Tide gauge
Brume - - -	Fog, mist	Éclat - - -	Flash of lights
		Écluse - - -	Lock of canal or basin
Cabane - - -	Hut	Écluse de chase	Flushing basin
Caboteur - -	Coaster	Écueil - - -	Shoal, rock
Calanque - -	A creek or little bay in the Mediterra- nean.	Église - - -	Church
		Encâblure - -	A cable's length
Cale de radoub	Patent slip	Entrée - - -	Entrance
Canal - - -	Canal, channel	Epave - - -	Wreck, obstruction
		Escarpée - - -	Bluff, steep

## FRENCH TERMS—continued.

French.	English.	French.	English.
Étale - - -	Slack water (of tidal streams), settled (of winds)	Marine - - -	Marine, navy; also a beach or landing place in Corsica for village or town inland
Étang - - -	Lake	Mât - - -	Mast
Étarque - - -	Hoisted (as a sail, flag, or time ball)	Matte - - -	Uneven bottom, with interlaced weeds
Étiage - - -	Low water mark	Mer - - -	Sea
Étier - - -	A creek or canal which can receive small vessels; a conduit to salines	Môle - - -	Mole, pier
Falaise - - -	Cliff	Mont - - -	Mount, mountain
Fanal - - -	Lighthouse, light	Montagne - - -	Mount, mountain
Fange - - -	Ooze, mud	Morne - - -	Hill
Ferme - - -	Farm	Mortes eaux - - -	Neap tides
Feu - - -	Fire, light	Mou, Mol, Molle - - -	Soft
Feu permanent - - -	A light constantly burning and unwatched.	Mouillage - - -	Anchorage
Flèche - - -	Spire	Moulin - - -	Mill
Fléuve - - -	River, stream	Mur - - -	Wall
Flot - - -	Flood tide	Musoir - - -	Mole (or pier) head
Fond - - -	Bottom	Naufrage - - -	Shipwreck
Forêt - - -	Forest	Navire - - -	Ship, vessel
Forme de radoub - - -	Dry dock	Neuf, ve - - -	New
Fosse - - -	Ditch	Niveau - - -	Level
Gare - - -	Station	Nœud - - -	Knot
Golfe - - -	Gulf, bay	Noir, e - - -	Black
Goulet - - -	Narrow entrance, gut	Nouveau - - -	New
Grande - - -	Great	Nuage - - -	Cloud, mist
Gril de Carenage - - -	Gridiron	Occidental, e - - -	Western
Gros - - -	Large, heavy, rough	Onde - - -	Wave
Haut-fond - - -	Shoal, shallow	Oriental, e - - -	Eastern
Haute mer - - -	High water	Ouragan - - -	Hurricane
Hauteur - - -	Height, elevation	Passe - - -	Pass, channel
Havre - - -	Harbour, port	Patente de Santé - - -	Bill of health
Hôpital - - -	Hospital	Pavillon - - -	Flag
Houle - - -	Swell	Permanent - - -	Unwatched (light)
Île - - -	Island	Pertuis - - -	Opening or strait
Îlot - - -	Islet	Petit, e - - -	Small
Jaune - - -	Yellow	Phare - - -	Lighthouse
Jetée - - -	Jetty	Pic - - -	Peak
Jusant - - -	Ebb tide	Pierre - - -	Stone
Lac - - -	Lake	Pignon - - -	Gable
Madrague - - -	Tunny net	Pilote - - -	Pilot
Maillon - - -	Shackle of a cable	Pin - - -	Pine or fir tree
Maison - - -	House	Plage - - -	Beach
Maquis - - -	Thicket of shrubs, especially in Corsica	Plaine - - -	Plain
Marais - - -	Swamp, marsh	Plateau - - -	Table land, flat, under water
Marée - - -	Tide	Pleine mer - - -	High water
Marée descendante - - -	Ebb tide	Pointe - - -	Point
Marée montante - - -	Rising tide	Pont - - -	Bridge, deck
		Port - - -	Port, harbour
		Presqu'île - - -	Peninsula
		Prêtre - - -	Priest
		Quai - - -	Quay, wharf
		Rade - - -	Road
		Rafale - - -	Squall
		Récif - - -	Reef

FRENCH TERMS—*continued*.

French.	English.	French.	English.
Relèvement -	Bearing	Temps -	Time, weather
Rivière -	River	Tonne -	Barrel buoy
Roche -	Rock	Torrent -	Stream, torrent
Rocher -	Rock, generally above water	Tour -	Tower
Rose de compas -	Compass card	Tourelle -	Small tower, turret
Rouge -	Red	Tribord -	Starboard
Ruisseau -	Stream	Trou -	Little opening or in- dentation in the coast; also uneven bottom
Sable -	Sand		
Saline -	Salt water lagoon, salt works	Usine -	Factory
Sas -	Interval between lock gates	Vase -	Mud
Sauvetage -	Salvage, life-saving	Vent -	Wind
Scaphandre -	Diving gear	Vergue -	Yard
Seuil -	Sill	Vert, e -	Green
Sommet -	Summit	Vieux, vieil, vieille -	Old
Sous-marins -	Submarines	Village -	Village
		Ville -	Town
Tempête -	Storm, tempest	Vives eaux -	Spring tides

## ITALIAN TERMS.

Italian.	English.	Italian.	English.
Acqua -	Water	Bosco -	Wood, forest
Acquitrino -	Swamp	Braccio -	Fathom
Albero -	Mast, tree	Burrasca -	Squall
Alga (pl. Alghe) -	Sea-weed	Bussola -	Compass
Allerta -	Look-out		
Altezza -	Height	Cala, Calanca -	Creek or little bay in the Mediterranean
Alto, a -	High, lofty	Calata -	Wharf
Alzata -	Embankment	Caldaie -	Boilers
Ancoraggio -	Anchorage	Campanile -	Campanile, belfry, steeple
Approdo -	Landing place	Canale -	Canal, channel
Arcipelago -	Archipelago	Capitaneria di Porto -	Captain of the Ports' office
Arena -	Sand, gravel		
Argilla -	Clay	Capo -	Cape, headland
Azzuro -	Blue	Carbone -	Coal
		Caricatori -	Shipping place
Bacino -	Basin, dock	Casa -	House
Baia -	Bay	Casino -	Country house, club
Balza -	Rock, cliff, precipice	Castel, Castello -	Castle
Banchina -	Quay, wharf	Chiesa -	Church
Banco, Banchi -	Bank, banks	Cima -	Summit
Bandiera -	Flag	Citta -	City, town
Barca -	Boat	Collina -	Hill
Barra -	Bar	Conchiglia -	Shells
Bassofondo -	Shoal, shallow	Corallo -	Coral
Battello -	Boat	Corpo di Guardia -	Guard house
Bianco -	White	Corrente -	Current
Boa -	Buoy	Corto, a -	Short
Boa da ormeggio -	Mooring buoy		
Boa da tonneaggio -	Warping buoy	Darsena -	Wet dock or basin, dockyard
Boa luminosa -	Light buoy	Dogana -	Custom house
Bocca, Bocche -	Mouth or entrance to a river, bay, or strait		



## ITALIAN TERMS—continued.

Italian.	English.	Italian.	English.
Eclissi - - -	Eclipse	Nero - - -	Black
Entrata - - -	Entrance	Neve - - -	Snow
Erto - - -	Steep, straight, bold	Nube - - -	Cloud
Estate - - -	Summer	Nuovo - - -	New
Fanale - - -	Lighthouse, light, lantern	Nuvolo - - -	Cloudy, misty
Fango - - -	Mud	Occidentale - - -	Western
Faro - - -	Lighthouse	Oliva - - -	Olive
Ferro - - -	Iron	Onda - - -	Wave
Ferrovìa - - -	Railway	Orientale - - -	Eastern
Fiore del Mondo	Compass card	Ormeggio - - -	Mooring
Fissa - - -	Fixed	Ospedale - - -	Hospital
Fiumara - - -	River	Osservatorio - - -	Observatory
Fiume - - -	River	Palo - - -	Stake, post
Fiumicino - - -	Rivulet	Palombaro - - -	Diver
Folgori - - -	Flashing	Palude - - -	Swamp, marsh
Fondo - - -	Bottom	Passo - - -	Penis, channel
Fontana - - -	Fountain, spring	Penisola - - -	Peninsula
Foresta - - -	Forest, wood	Pericolo - - -	Danger
Forte - - -	Fort	Piano - - -	Plain, flat
Fortino - - -	Small fort	Pianura - - -	Plain
Gavitello - - -	Buoy	Picco - - -	Peak
Ghiaia - - -	Gravel	Piccolo, Picciolo	Small, little
Girante - - -	Turning, revolving	Pietra - - -	Stone
Golfo - - -	Gulf, bay	Pila - - -	Pile
Grande - - -	Great	Pilastro - - -	Pillar, pile
Gru - - -	Crane	Pilota - - -	Pilot
Gruppo - - -	Group	Pioggia - - -	Rain
Guado - - -	Ford	Piramide - - -	Pyramid
Imboccatura - - -	Mouth of river	Piroscafo - - -	Steamboat or vessel
Isola - - -	Island	Poggio - - -	Mound, little hill
Isolotto - - -	Islet	Ponte - - -	Bridge, deck
Istmo - - -	Isthmus	Pontile - - -	Pier
Lago - - -	Lake	Porta - - -	Entrance, gate
Luce - - -	Light	Porto - - -	Port, harbour
Lume - - -	Light	Posta - - -	Post, post office
Macchine - - -	Engines	Pozzo - - -	Well
Magazzino - - -	Warehouse	Presagio di tempesta.	Storm warnings
Mancine - - -	Crane	Pressi - - -	Neighbourhood
Mare - - -	Sea	Primavera - - -	Spring
Marca - - -	Tide	Promontorio - - -	Promontory
Mareografo - - -	Tide gauge	Punta - - -	Point
Marina - - -	Beach, landing place for village or town, a little inland	Quarantena - - -	Quarantine
Meda - - -	Beacon	Rada - - -	Road
Meridionale - - -	Southern	Rafo (local dialect)	Shoal, sandbank
Molino - - -	Mill	Reti-Tonnare - - -	Tunny nets
Molo - - -	Mole	Rilevamento - - -	Bearing
Montagna - - -	Mountain	Rimorchiatore - - -	Tug
Monte - - -	Mount, mountain, hill	Riva - - -	Coast, bank
Muro - - -	Wall	Rocca - - -	Rock
Nave - - -	Ship, vessel	Roccia - - -	Rock, precipice
Nebbia - - -	Fog, mist, haze	Roccioso - - -	Rocky
Nebbioso - - -	Foggy, misty, hazy	Romito - - -	Hermit
		Rondo - - -	Round
		Rosa - - -	Pink
		Rosa della Bursola - - -	Compass card
		Rosso - - -	Red
		Rotondo - - -	Round

ITALIAN TERMS—*continued.*

Italian.	English.	Italian.	English.
Rovina - - -	Ruin	Striscia - - -	Stripe, band
Rupe - - -	Rock, crag, cliff	Sughero - - -	Cork, float
Sabbia - - -	Sand	Tavola - - -	Table, list
Salina - - -	Salt water lagoon	Telegrafo - - -	Telegraph
Sanita - - -	Health	Tempesta - - -	Tempest, storm
Santo - - -	Holy, sacred	Tempio - - -	Temple
Sasso - - -	Stone, pebble, rock	Tempo - - -	Time, weather
Sbarcatoio - - -	Landing place, quay	Terremoto - - -	Earthquake
Scacchi - - -	Chequers	Testa, Testata	Head
Scafo - - -	Hull	Tettoia - - -	Shed
Scala - - -	Landing steps	Tondo - - -	Round
Scalo d'Alagio - - -	Patent slip	Tonnara - - -	Tunny fishery
Scandaglio - - -	Sounding lead	Tonneggio - - -	Warping
Scoglio - - -	Rock, reef	Torre - - -	Tower
Scogliera - - -	Ridge of rocks	Torrente - - -	Stream, torrent
Secca - - -	Shoal, sandbank	Ufficio, Uffizio	Office
Segnale - - -	Signal, mark	Valle - - -	Valley
Seno - - -	Small bay, creek	Vecchio - - -	Old, ancient
Settentrionale	Northern	Vento - - -	Wind
Sfera - - -	Sphere, ball	Vetoso - - -	Windy, stormy
Solfo - - -	Sulphur	Verde - - -	Green
Spalla - - -	Shoulder, back, summit	Vero - - -	True
Spento - - -	Extinguished	Vetta - - -	Summit
Splendore - - -	Flash	Via - - -	Road, street
Sponda - - -	Bank, border, edge	Villa - - -	Villa
Stagno - - -	Lake, pond	Villagio - - -	Village
Strada - - -	Road	Vulcano - - -	Volcano
Stretto - - -	Strait		

## POINTS OF THE COMPASS IN ENGLISH, FRENCH, AND ITALIAN.

English.	French.	Italian.	English.	French.	Italian.
North.	Nord.	Tramontana.	South.	Sud.	Ostro or Mezzo-giorno.
N. by E.	N. q. N.E.	T. q. G.	S. by W.	S. q. S.O.	O. q. L. or M. q. L.
N.N.E.	N.N.E.	G. T.	S.S.W.	S.S.O.	O. L. or M. L.
N.E. by N.	N.E. q. N.	G. q. T.	S.W. by S.	S.O. q. S.	L. q. O. or L. q. M.
N.E.	N.E.	Greco.	S.W.	S.O.	Libeccio.
N.E. by E.	N.E. q. E.	G. q. L.	S.W. by W.	S.O. q. O.	L. q. P.
E.N.E.	E.N.E.	G.L.	W.S.W.	O.S.O.	P.L.
E. by N.	E. q. N.E.	L. q. G.	W. by S.	O. q. S.O.	P. q. L.
East.	Est.	Levante.	West.	Ouest.	Ponente.
E. by S.	E. q. S.E.	L. q. S.	W. by N.	O. q. N.O.	P. q. M.
E.S.E.	E.S.E.	S.L.	W.N.W.	O.N.O.	P.M.
S.E. by E.	S.E. q. E.	S. q. L.	N.W. by W.	N.O. q. O.	M. q. P.
S.E.	S.E.	Scirocco.	N.W.	N.O.	Maestro.
S.E. by S.	S.E. q. S.	S. q. O. or S. q. M.	N.W. by N.	N.O. q. N.	M. q. T.
S.S.E.	S.S.E.	O. S. or M. S.	N.N.W.	N.N.O.	M.T.
S. by E.	S. q. S.E.	O. q. S. or M. q. S.	N. by W.	N. q. N.O.	T. q. M.

*Note.*—On the French compass card q. stands for quart, or  $\frac{1}{4}$ , and on the Italian for quarto, or  $\frac{1}{4}$ ; thus the Italian T. q. G. signifies Tramontana quarto Greco. or North a quarter north-eastward of the sector between North and N.E., which is expressed on the English compass card by N. by E.

# INFORMATION RELATING TO CHARTS, SAILING DIRECTIONS, AND GENERAL NAVIGATION.

## ON THE CORRECTION OF CHARTS, SAILING DIRECTIONS, AND LIGHT LISTS.

THE three descriptions of publications as guides to navigation, which are affected by the continual changes and alterations that take place, are the Charts, the Sailing Directions, and the Light Lists.

Of these the Charts should always be, so far as our knowledge permits, absolutely correct to date; the Sailing Directions, however, cannot, from their nature, be so corrected, and *in all cases where they differ from charts, the largest scale chart must be taken as the guide for navigation.*

The Light Lists are published annually.

**1. Charts.**—When issued to a ship on commissioning, the charts have received all necessary corrections to date. As sent from the Hydrographic Department they are correct to the date of issue as stamped on each folio. They then receive such corrections by hand in the dépôts as are required, and are so issued to the ships.

The charts in the folios should have the same number and title as shown against each in the Lists pasted on the outside of the folio. The Navigating Officer is to satisfy himself that they do so agree before signing the receipt for the charts, &c.

All small but important corrections affecting navigation that can be made by hand are notified by Notices to Mariners, and should at once be placed on the charts to which they refer, in accordance with the following uniform system:—

1. All corrections, additions to, erasures on Charts are to be neatly made in red (except as explained in paragraph 10*d*). In every case the recognised Chart abbreviations are to be used. (*See Admiralty Chart D. 11.*)

2. The number and date of every Notice to Mariners, from which corrections, &c., as above, have been made, are to be entered in red at the lower left-hand corner of the Chart, in the following manner, viz.:—

(07) 123, 1145, 1503; (08) 232; (10) 1506, 1721; (11) 34, &c., and in no other place or form (except as explained in paragraph 10*d*).

3. *General Remarks.*—The amount of information to be inserted on a Chart is to be in accordance with that already engraved on such Chart.

4. *The year date* is to be inserted against wrecks, reported shoals, channels dredged, depth of water on bars or in shifting channels, and irregularity of lights, but only on the largest scale chart affected.

5. *On the Coast Charts* full particulars of lights and fog signals are to be inserted where possible, omitting minor details of lights and fog signals of harbours.

6. *On Charts of smaller scale than Coast Charts* lights and fog signals of harbours are not to be inserted, and particulars of other

lights and fog signals are to be lessened as the scale of the Chart decreases, omitting details in the following order:—

For lights—(1) Height, (2) Period, (3) No. in Group, (4) Visibility, thus:—

Lt. Gp. Fl., (3) Red. ev. 20 sec. 150 ft., vis. 12 m.

(1) Lt. Gp. Fl., (3) Red. ev. 20 sec. vis. 12 m., (2) Lt. Gp. Fl., (3) Red. vis. 12 m.

(3) Lt. Gp. Fl. Red. vis. 12 m., (4) Lt. Gp. Fl. Red.

For fog signals, thus:—(1) Fog Siren, 2 ev. min., (2) Fog Siren, ev. min., (3) Fog Siren.

7. *On Ocean Charts* lights visible 15 miles or over are alone to be inserted, and then only their character and colour, *e.g.*, Lt. Alt., Lt. Gp. Fl., Lt. Occ., Lt. F.R.

8. *Light-buoys*.—No period is to be inserted against a light-buoy except in large scale plans; on ordinary scales only the character, *e.g.*, Lt. Occ., Lt. Fl.

9. *On Coast Charts* inner harbour buoys and beacons are not to be inserted, and on small scale coast charts only the outer buoys.

10. *Arrangement of Writing, &c.*—Writing is to be as much as possible clear of the water, unless the objects referred to are on the water:—

- (a) When inserting corrections, care must be taken not to obliterate any of the other information already on the chart.
- (b) When "Notes" are to be inserted (such as Cautionary, Tidal, &c.), they should be written in a convenient but conspicuous place, where they will not interfere with any other details.
- (c) *Erasures* are never to be made. Where necessary, the details to be corrected are to be crossed through in red ink.
- (d) *Temporary or intended changes* are to be inserted on the chart in pencil, with the number and year of the Notice to Mariners against them, thus:—N. to M. <sup>43</sup> <sub>1913</sub> temp. (which is also to be repeated in pencil *below* the "small corrections" dates at the lower left-hand corner of the chart), and in the case of intended changes, the particulars finally inked in, in red, when further notice has been received that the changes have been made. In the case of temporary changes, the pencil notations are to be rubbed out when a further Notice has been received cancelling them.

Charts, when received from a Chart Depôt or direct from the Hydrographic Department, will *not* have received the above-mentioned pencil corrections, but on first supply of a Chart Set, a copy of the latest Notice to Mariners, containing a List of all Notices to Mariners of a Temporary character and Preliminary Notices which are still in force *by which any Charts are temporarily affected*, will be specially handed to the Navigating Officer or attached to Chart Set, and the first duty of the Navigating Officer will be to make the necessary corrections in pencil to the charts affected.

11. One copy of all Notices to Mariners is to be pasted into the Sailing Directions, in its appropriate place, so that if fuller detail is required than what the scale of the chart permits to be given, it will be found on the proper page referring to the given locality or subject.

12. Unmounted Sets of Charts supplied for the personal use of the Admiral, Atlas folios supplied for information of Officers and Junior Officers, and Charts for Ships' Company, are stamped, "Not to be used for Navigation," and need not, therefore, be kept corrected.

**2. Sailing Directions** are not corrected before issue, but on page iii. in the "Advertisement" to each volume will be found the number of the last Notice to Mariners used in its revision; the numbers of the subsequent Notices affecting it between going to press and issue to H.M. Ships are given in the Notice to Mariners announcing its publication.

Supplements and Revised Supplements referring to each volume are published from time to time. Supplements contain all the information received up to date since the publication of the volume to which they refer, and a Revised Supplement cancels the previous Supplements.

The existence of a Supplement is to be noted in the tabular form placed for the purpose inside the cover of each volume, and also on receipt of a further Revised Supplement after commission. Two copies are issued to each ship, one of which is to be retained intact, for reference, notations referring to it being made on the pages of the Sailing Directions affected; the other copy may be cut up, if considered desirable, the slips being pasted in the volume at the appropriate place.

In the advertisement to each Supplement will be found the number of the last Notice to Mariners used in its compilation.

In January of each year, a summary of the information affecting each volume of Sailing Directions, which has been published during the preceding year in Notices to Mariners, is issued as a separate publication. If a Supplement or Revised Supplement has been issued during the year, or is in preparation, this summary will only include Notices to Mariners issued since the date of such Supplement.

Notices to Mariners prior to the date of issue of a Chart Set from a Chart Dépôt are supplied with the set, to complete the interval between the last published Supplement, Revised Supplement, or Summary of Notices to Mariners, and the issue of the Chart Set, and an early duty of the Navigating Officer after drawing a Chart Set is to correct the Sailing Directions from the Supplements or Revised Supplements, Annual Summaries of Notices to Mariners, and Notices to Mariners supplied with the Chart Set.

One copy of each Notice to Mariners should be pasted into the Sailing Directions in its appropriate place as soon as received.

It must, however, be thoroughly understood that Sailing Directions will never be correct in all minor details, except up to the date of the last Supplement or Revised Supplement, and that, when differences exist, the charts, which should be corrected from the most recent information, should be taken as the guide; for which purpose, for ordinary navigation, they are sufficient.

**3. The Light Lists**, published annually early in each year, are not corrected in the dépôts before issue, but appendices are issued every week with the weekly copies of Notices to Mariners, giving the alterations that have taken place.

It is the duty of the Navigating Officer when he receives the Chart Set to make notations in the Light Lists from these appendices, and from Notices to Mariners of later date; and to keep them so corrected from time to time.

The Light Lists should always be consulted as to the details of a light, as the lights are not described in the Sailing Directions. A red label to this effect is inserted opposite page 1 of all Sailing Directions. The charts also may not be equally up-to-date in some details, for which no Notices to Mariners have been issued.

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### THE USE OF CHARTS AS NAVIGATIONAL AIDS AND GENERAL REMARKS RELATING TO PRACTICAL NAVIGATION.

1. *Reliance on a Chart.*—The value of a chart must manifestly depend upon the accuracy of the survey on which it is based, and this becomes more important the larger is the scale of the chart.

To estimate this, the date of the survey, which is always given in the title, is a good guide. Besides the changes that, in waters where sand or mud prevails, may have taken place since the date of the survey, the earlier surveys were mostly made under circumstances that precluded great accuracy of detail, and, until a plan founded on such a survey is tested, it should be regarded with caution. It may, indeed, be said that, except in well-frequented harbours and their approaches, no surveys yet made have been so minute in their examination of the bottom as to make it certain that all dangers have been found. The fullness or scantiness of the soundings is another method of estimating the completeness of a chart. When the soundings are sparse or unevenly distributed, it may be taken for granted that the survey was not in great detail.

It appears to be insufficiently realised that the degree of reliance which may reasonably be placed upon an Admiralty chart, even in surveys of modern date, is mainly dependent on the scale on which the survey was made. The scale for publication is now generally that of the original survey, except in the case of Coast sheets, which are sometimes reduced. It should not, therefore, be assumed that the original survey was made on a larger scale than that published.

It must be borne in mind that the only method of ascertaining the inequality of the bottom of the sea is by the laborious process of sounding, and that in sounding over any area, the boat or vessel obtaining the soundings is kept on given lines; that each time the lead descends it only ascertains the depth of water over an area equal to the diameter of the lead, that is about two inches, and that consequently each line of soundings, though miles in length, is only to be considered as representing a width of two inches.

Surveys are not made on uniform scales, but each survey is made on a scale commensurate with its apparent importance. For instance, a general survey of a coast which vessels only pass in proceeding from one place to another is not usually made on a scale larger than one inch to the nautical mile, while surveys of areas where vessels are likely to anchor, are made on a scale of three inches to the mile, and surveys of frequented ports, or harbours likely to be used by Fleets, on a scale of from six inches to ten inches to the nautical mile.

Close examination by sounding is the only method by which surveys on a large scale can be made, and in view of the vast mileage of surveys yet requiring completion in the interests of navigation, it would be a waste of time to undertake large scale Coast surveys.

The scale on which a survey is to be conducted having been settled, it is manifestly superfluous to obtain more lines of soundings than can be represented on the paper. 100 soundings, which is the maximum number that can be placed with clearness on every square inch of paper, means that on a scale of one inch to the mile each sounding on the chart occupies an area representing eight acres of actual ground, whilst on a scale of six inches to the mile each sounding represents an area of a little less than a quarter of an acre, *i.e.*, of 100 feet square.

The following diagram represents as many soundings as can be placed legibly on a square inch of paper:—

16	15	15	13	14	12	11	10	9
14	15	14	14	13	13	12	11	9
15	15	14	17	16	14	13	10	9
16	16	17	16	16	12	11	8½	9
16	17	15	12	9	7½	7½	9	10
19	16	12	9	5½	4½	5½	6½	8½
22	19	16	10	3½	5½	6½	7½	8½
20	16	12	7½	5½	6½	7½	8½	10
16	15	11	9	7½	7	7½	8½	11
29	17	14	11	12	10	9	10	11

Little assistance in detecting excrescences on the bottom is afforded by the eye, when sounding in a boat, even in clear weather, on account of the observer being within five feet of the surface; none in turbid seas. If, therefore, there is no inequality in the soundings to cause suspicion, a shoal patch between two lines may occasionally escape detection.

Lines of soundings plotted as close as may be practicable on a scale of 6 inches to the mile would be 100 feet apart, and each line would be only 2 inches in actual width.

Thus, in a chart on a scale of one inch to the mile, an inequality of some acres in extent rising close to the surface, if it happened to be situated between two lines, might escape the lead; whilst in a chart on a scale of 6 inches, inequalities as large as battle-ships, if lying parallel to, and between the lines of soundings, might exist without detection if they rose abruptly from an otherwise even bottom.

General Coast charts should not, therefore, be looked upon as infallible, and a rocky shore should on no account be approached within the contour line of 10 fathoms, without taking every precaution to avoid a possible danger; and even with surveys of harbours on a scale of 6 inches to the mile, vessels should avoid, if possible, passing over charted inequalities in the ground, as some isolated rocks are so sharp that the lead will not rest on them.

Blank spaces among soundings mean that no soundings have been obtained in these spots. When the surrounding soundings are deep it may with fairness be assumed that in the blanks the water is also deep; but when they are shallow, or it can be seen from the rest of the chart that reefs or banks are present, such blanks should be regarded with suspicion. This is especially the case in coral regions and off rocky coasts, and it should be remembered that in waters where rocks abound it is always possible that a survey, however complete and detailed, may have failed to find every small patch.



A wide berth should therefore be given to every rocky shore or patch, **and this rule should be invariably followed, viz., that instead of considering a coast to be clear, unless it is shown to be foul, the contrary should be assumed.**

**2. Fathom Lines a Caution.**—Except in plans of harbours that have been surveyed in detail, the five-fathom line on most Admiralty charts is to be considered as a caution or danger line against unnecessarily approaching the shore or bank within that line, on account of the possibility of the existence of undiscovered inequalities of the bottom, which nothing but an elaborate detailed survey could reveal. In general surveys of coasts or of little frequented anchorages, the necessities of navigation do not demand the great expenditure of time required for such a detailed survey. It is not contemplated that ships will approach the shores in such localities without taking special precautions.

The ten-fathom line is, on rocky shores, as before mentioned, another warning, especially for ships of heavy draught.

Charts where no fathom lines are marked must be especially regarded with caution, as it generally means that soundings were too scanty and the bottom too uneven to enable them to be drawn with accuracy.

Isolated soundings, shoaler than surrounding depths, should always be avoided, especially if ringed round, as there is no knowing how closely the spot may have been examined.

**3. Chart on largest scale always to be used.**—It sometimes happens that, from press of work, only the copper plate of the larger scale chart of a particular locality can at once receive any extensive re-arrangement of coastline or soundings. This is an additional reason, besides the obvious one of the greater detail shown, why this largest scale chart should always be used for navigating.

**4. Caution in using Small Scale Charts.**—In approaching the land or dangerous banks, regard must always be had to the scale of the chart used. A small error in laying down a position means only yards on a large scale chart, whereas on a small scale the same amount of displacement means large fractions of a mile. This is particularly to be observed when coming to an anchor on a narrow ledge of convenient depth at some distance from the shore.

For the same reason bearings to objects near should be used in preference to objects farther off, although the latter may be more prominent, as a small error in bearing or in laying it down on the chart has a greater effect in misplacing the position the longer the line to be drawn.

**5. Graduation.**—All Plans are now being graduated in skeleton style before publication in order to facilitate easy reference to Astronomical positions; previously published plans are also graduated as opportunity offers. The graduation is, however, of necessity, often based upon imperfect information of a conflicting nature; for this reason, whenever an Astronomical position is quoted other than approximate (*i.e.*, when seconds are given), it is necessary to quote also the number of the particular chart from which the position has been derived.

**6. Distortion of Printed Charts.**—The paper on which charts are printed has to be damped. On drying, distortion takes place from the inequalities in the paper, which greatly varies with different paper and the amount of the original damping; but it does not affect

navigation. It must not, however, be expected that accurate series of angles taken to different points will always exactly agree, when carefully plotted upon the chart, especially if the lines are to objects at some distance. The larger the chart the greater the amount of this distortion.

**7. Buoys.**—It is manifestly impossible that any reliance can be placed on buoys always maintaining their exact position. Buoys should therefore be regarded as warnings and not as infallible navigating marks, especially when in exposed positions; and a ship should always, when possible, be navigated by bearings or angles of fixed objects on shore and not by buoys.

*Light-buoys.*—The lights shown by light-buoys cannot be implicitly relied on, as, if occulting or flashing, the apparatus may get out of order, or the light may be altogether extinguished. These lights in the British islands are from 5 to 217 candle power.

**8. Lights.**—Circles drawn on charts round a light are not intended to give information as to the distance at which it can be seen, but solely indicate, in the case of lights which do not show the same characteristics or colours in all directions, the bearings between which the differences occur.

All the distances given in the Light Lists and on the charts for the visibility of lights are calculated for a height of an observer's eye of 15 feet. The table of distances visible due to height, at the beginning of each Light List, affords a means of ascertaining how much more or less the light is visible should the height of the bridge be more or less. The glare of a powerful light is often seen far beyond the limit of visibility of the actual rays of the light, but this must not be confounded with the true range. Again, refraction may often cause a light to be seen farther than under ordinary circumstances.

When looking out for a light at night, the fact is often forgotten that from aloft the range of vision is much increased. By noting a star immediately over the light a very correct bearing may be afterwards obtained from the standard compass.

The intrinsic power of a light should always be considered when expecting to make it in thick weather. A weak light is easily obscured by haze, and no dependence can be placed on its being seen.

The power of a light can be estimated by remarking its order, or candle power, as given in the Light Lists, and in some cases by noting how much its visibility in clear weather falls short of the range due to the height at which it is placed. Thus, a light standing 200 feet above the sea, and only recorded as visible at 10 miles in clear weather, is manifestly of little brilliancy, as its height would permit it to be seen over 20 miles, if of any power. (*See table in Light List before mentioned.*)

The distance from a light cannot be estimated either by its brilliancy or its dimness.

On first making a light from the bridge, by at once lowering the eye several feet and noting whether the light is made to dip, it may be determined whether the vessel is in the circle of visibility corresponding with the usual height of the eye or unexpectedly nearer the light.

**9. Fog Signals.**—Sound is conveyed in a very capricious way through the atmosphere. Apart from wind, large areas of silence have been found in different directions and at different distances from the fog signal station, in some instances even when in close proximity to it. The apparatus, moreover, for sounding the signal often requires some time before it is in readiness to act. A fog often creeps imperceptibly towards the land, and is not observed by the people at a station until it is upon them; whereas a ship may have been for many hours in it, and approaching the land. In such a case no signal may be made. When sound has to travel against the wind, it may be thrown upwards; in such a case, a man aloft might hear it when it is inaudible on deck. Under certain conditions of the atmosphere, when a fog signal is a combination of high and low notes, one of the notes may be inaudible.

The mariner should not assume—

- a. That because he fails to hear the sound, he is out of hearing distance.
- b. That, because he hears a fog signal faintly, he is at a great distance from it.
- c. That, because he hears the sound plainly, he is near it.
- d. That, because he does not hear it, even when in close proximity, the fog signal has ceased sounding.
- e. That the distance from and the intensity of the sound on any one occasion, are a guide to him for any future occasion.

Taken together, these facts should induce the utmost caution in closing the land in fogs. The lead is generally the only safe guide.

**10. Tides and Tidal Streams.**—In navigating coasts where the tidal range is considerable, caution is always necessary. It should be remembered that there are indraughts to all bays and bights, although the general run of the stream may be parallel to the shore.

The turn of the tidal stream off-shore is seldom coincident with the time of high and low water on the shore. In open channels, the tidal stream ordinarily overruns the turn of the vertical movement of the tide by about three hours, forming what is usually known as tide and half-tide, the effect of which is that at high and low water by the shore the stream is running at its greatest velocity.

In crossing a bar or shallow flats, Tidal diagrams to show the height of the tide at any time for any place, given in the Tide Tables, will be found of great assistance in calculating how much the water has risen or fallen at any hour of the tide.

On coasts where there is much diurnal inequality in the tides, the amount of rise and fall can never be depended upon, and additional caution is necessary.

It should also be remembered that at times the tide falls below the mean level of low water springs. This always occurs on the coasts of Europe at the equinoxes, but in other parts of the world, and especially in the tropics, such periodic low tides may coincide more frequently with the solstices. Wind or a high barometer may produce it at any time, and the amount varies with locality. When the moon's perigee coincides with the full or new moon the same effect is often produced.

**11. Arrows** on charts only show the most usual or the mean direction of a tidal stream or current. It must never be assumed that the

direction of a stream will not vary from that indicated by the arrow. In the same manner, the rate of a stream constantly varies with circumstances, and the rate given on the chart is merely the mean of those found during the survey, possibly from very few observations.

**12. Fixing position.**—The most accurate method of fixing a position relative to the shore is by angles between well-defined objects on the chart. All ships are supplied with a station-pointer, and this method should be used whenever possible.

Two things are, however, necessary to its successful employment: First, that the objects be well chosen; and, second, that the observer is skilful and rapid in his use of the sextant and station-pointer.

For the former, reference can be made to the pamphlet on the use of the station-pointer, which is in every chart box; the latter is only to be obtained by practice.

It will readily be seen that in war time, when the compass may be knocked away, or gun-fire may make it undesirable to expose the person more than necessary, a sextant offers great advantages, as angles can be obtained from any position whence the objects are visible. It is this contingency that makes it especially desirable that all navigating officers should become expert in this method of fixing a ship's position.

In many narrow waters also, where the objects may yet be at some distance, as in coral harbours or narrow passages among mud banks, navigation by sextant and station-pointer is invaluable, as a true position can only be obtained by its means. A small error in either taking or plotting a bearing under such circumstances may put the ship ashore.

It is not intended that the use of the compass to fix the ship should be given up; there are many circumstances in which it may be usefully employed, but errors more readily creep into a position so fixed. In all cases where great accuracy of position is desired, angles should invariably be used, such as the fixing of a rock or shoal, or of additions to a chart of fresh soundings or new buildings. In all such cases angles should be taken to several objects, the more the better; but five objects is a good number, as the four angles thus obtained not only prevent any errors, but they at once furnish a means of checking the accuracy of the chart itself. In the case of ordinary soundings, it is only necessary to take a third angle now and then; firstly, to check the general accuracy of the chart, as above stated; secondly, to make certain that the more important soundings, as at the end of a line, are correctly placed.

Sometimes, when only two objects are visible, a compass bearing and sextant angle may be used with advantage.

In passing near a point of land, or an island, the method of fixing by doubling the angle on the bow is invaluable. The ordinary form of it, the so-called "four-point bearing," when the bearing is taken four points on the bow and on the beam, the distance from the object at the latter position being the distance run between the times of taking the two bearings, allowing for current, gives an excellent fix for a departure but does not ensure safety, as the point and probably the rocks off it are abeam before the position is obtained.

By taking the bearings of two points and four points on the bow, a very good position is obtained before the object is passed; the distance of the latter at the second position being, as before, equal to the distance run in the interval, allowing for current.

This is, however, only strictly true if the current is directly with or against the course of the ship. If a cross current has to be allowed for, the results by this method may be altogether erroneous and misleading. The following example shows in a tabular form the errors that might be produced by accepting the distance run in the interval, allowing for current, as the distance of the object at time of second bearing.

Example: A vessel steering East sights a light bearing E.N.E., or two points on the bow; one hour after, having run in the interval 10 miles by log, the light bears N.E., i.e., she has doubled the angle on the bow. Current, in all cases, at the rate of 2 miles an hour.

Direction of Current	Distance run between 1st & 2nd Bearings		Distance of Light at 2nd Bearing	Direction of Current	Distance run between 1st & 2nd Bearings		Distance of Light at 2nd Bearing
	By Log	Allowing for Current			By Log	Allowing for Current	
	Miles	Miles	Miles		Miles	Miles	Miles
East -	10	12	12	West -	10	8	8
E.N.E. -	10	11.8	10	W.S.W. -	10	8.2	10.2
N.E. -	10	11.4	8	S.W. -	10	8.7	11.9
N.N.E. -	10	11	6.2	S.S.W. -	10	9.4	13.6
North -	10	10.2	5.3	South -	10	10.2	14.7
N.N.W. -	10	9.4	4.9	S.S.E. -	10	11	15
N.W. -	10	8.7	5.3	S.E. -	10	11.4	14.7
W.N.W. -	10	8.2	6.1	E.S.E. -	10	11.8	13.8

The following rule should be observed in all cases of a cross current, viz.:—

When the angle between the second bearing and the course made good (over the ground) is double the angle between the first bearing and the course made good (over the ground) the distance from the object is equal to the distance made good (over the ground) between the times of the first and second bearings.

To get a reliable result the difference between the first bearing and the course made good (over the ground) should never be less than 20°. It follows, therefore, that it is necessary, before observing the first bearing, to decide upon the course being made good (over the ground). This may be done as follows, viz.:—

From any point, A, on the chart draw a line A B, representing by its direction the course steered and by its length the speed through the water. From the point B, draw another line, B C, representing in a similar manner the estimated direction and rate of the current, &c., to be allowed for. Then a line joining the points A and C will represent in the same manner the course and speed which are being made good (over the ground).

A table of factors, by which to multiply the distance run, to obtain the distance of the object when any number of degrees between the two bearings has been observed, is supplied with all chart sets.

The use of a danger angle in passing outlying rocks with land behind should also not be forgotten. In employing this method, however, caution is necessary, as should the chart be not accurate, i.e., should the objects selected be not quite correctly placed, the angle taken off from it may not serve the purpose. It should not, therefore, be employed when the survey is old or manifestly imperfect.

In fixing by the compass, it must always be remembered that two bearings only are liable to error. An absolute error may be made in either bearing observed; errors may be made in applying the deviation; or errors may creep in in laying them on to the chart. For these reasons, a third or check bearing of some other object should be taken, especially when near the shore or dangers. The coincidence of these three lines will prevent any mistakes.

Amongst astronomical methods of fixing a ship's position, attention is drawn to the great utility of Sumner's method. A Sumner line, that is, a line drawn through the position (obtained by an assumed latitude or longitude) at right angles to the bearing of the sun, as obtained from the azimuth tables, gives at times invaluable information, as the ship must be somewhere on that line, provided the chronometer is correct. A deep cast of the lead at the same time may often serve to give an approximate position on the line. An early and very accurate position can also be obtained by Sumner's method, by getting a Sumner line by a bright star at daylight when the horizon is well visible, and another Sumner line by the sun when a few degrees above the horizon, or, better still, by observing two or more stars at twilight. The Sumner lines thus obtained will, if the bearing of sun and star differ three points or more, give an excellent result.

**13. Change of Variation of the Compass.**—The gradual change in the variation must not be forgotten in laying down positions by bearing on charts. The magnetic compasses placed on the charts for the purpose of facilitating plotting become in time slightly in error, and in some cases, such as with small scales, or when the lines are long the displacement of position from neglect of this change may be of importance. The compasses are re-engraved when the error amounts to a quarter of a point, but the chart plates cannot be corrected more frequently from the impossibility of making alterations often on one spot in a copper plate.

The geographical change in the variation is in some parts of the world sufficiently rapid to need consideration. For instance, in approaching Halifax from Newfoundland the variation changes  $10^{\circ}$  in less than 500 miles, and in the English Channel about  $5^{\circ}$  in 400 miles. The Variation Chart should be consulted on this head.

On certain general charts embracing large areas with considerable change of variation, true compasses are placed instead of magnetic compasses, the variation being shown by *isogonic lines* (curves of equal magnetic variation), in a similar manner to the Variation Chart. One or two *isogonic lines* are also sometimes placed on charts, in addition to the magnetic compasses, in order to indicate the general direction of these curves, and thus facilitate the determination of the variation to be employed in portions of the chart not in immediate proximity to any one of the engraved compasses.

**14. Local Magnetic Disturbance of the Compass on board Ship.**—The term "local magnetic disturbance" has reference only to the effects on the compass of magnetic masses external to the ship in which it is placed. Observation shows that such disturbance of the compass in a ship afloat is experienced only in a few places on the globe.

Magnetic laws do not permit of the supposition that it is the visible land which causes such disturbance, because the effect of a magnetic force diminishes in such rapid proportion as the distance from it increases that it would require a local centre of magnetic force

of an amount absolutely unknown to affect a compass half a mile distant.

Such deflections of the compass are due to magnetic minerals in the bed of the sea under the ship, and when the water is shallow, and the force strong, the compass may be temporarily deflected when passing over such a spot, but the area of disturbance will be small, unless there are many centres near together.

It is very desirable that whenever a ship passes over an area of local magnetic disturbance, the position should be fixed, and the facts reported as far as they can be ascertained.

**15. Use of Oil for Modifying the Effect of Breaking Waves.**—Many experiences of late years have shown that the utility of oil for this purpose is undoubted, and the application simple.

The following may serve for the guidance of seamen, whose attention is called to the fact that a very small quantity of oil, skilfully applied, may prevent much damage both to ships (especially the smaller classes) and to boats, by modifying the action of breaking seas.

The principal facts as to the use of oil are as follows:—

1. On free waves, i.e., waves in deep water, the effect is greatest.
2. In a surf, or waves breaking on a bar, where a mass of liquid is in actual motion in shallow water, the effect of the oil is uncertain, as nothing can prevent the larger waves from breaking under such circumstances; but even here it is of some service.
3. The heaviest and thickest oils are most effectual. Refined kerosene is of little use; crude petroleum is serviceable when nothing else is obtainable; but all animal and vegetable oils, such as waste oil from the engines, have great effect.
4. A small quantity of oil suffices, if applied in such a manner as to spread to windward.
5. It is useful in a ship or boat, both when running, or lying to, or in wearing.
6. No experiences are related of its use when hoisting a boat up in a sea-way at sea, but it is highly probable that much time and injury to the boat would be saved by its application on such occasions.

At anchor, when the sea is sufficient to render it difficult to hoist up or in boats, oil bags from forward or from the swinging booms have been found to render the sea alongside comparatively smooth.

7. In cold water, the oil, being thickened by the lower temperature, and not being able to spread freely, will have its effect much reduced. This will vary with the description of oil used.

8. The best method of application in a ship at sea appears to be: hanging over the side, in such a manner as to be in the water, small canvas bags, capable of holding from one to two gallons of oil, such bags being pricked with a sail needle to facilitate leakage of the oil.

The position of these bags should vary with the circumstances. Running before the wind they should be hung on either bow—e.g., from the cathead—and allowed to tow in the water.

With the wind on the quarter the effect seems to be less than in any other position, as the oil goes astern while the waves come up on the quarter.

Lying to, the weather bow and another position farther aft seem the best places from which to hang the bags, with a sufficient length of line to permit them to draw to windward, while the ship drifts.

9. Crossing a bar with a flood tide, oil poured overboard and allowed to float in ahead of the boat which would follow with a bag towing astern, would appear to be the best plan. As before remarked, under these circumstances the effect cannot be so much trusted.

On a bar with the ebb tide it would seem to be useless to try oil for the purpose of entering.

10. For boarding a wreck, it is recommended to pour oil overboard to windward of her before going alongside. The effect in this case must greatly depend upon the set of the current, and the circumstances of the depth of water.

11. For a boat riding in bad weather from a sea anchor, it is recommended to fasten the bag to an endless line rove through a block on the sea anchor, by which means the oil is diffused well ahead of the boat, and the bag can be readily hauled on board for refilling if necessary.

12. Towing a vessel in a heavy sea, oil is of the greatest service, and may prevent parting the hawser. Distribute from the towing vessel forward and on both sides; if used only aft the tow alone gets the benefit.

#### 16. *Concise Rules for Revolving Storms:—*

1. Revolving storms are so named because the wind in these storms revolves round an area of low pressure situated in the centre. They have also local names, and are termed hurricanes in the West Indies and South Pacific Ocean; cyclones in the Indian Ocean, Bay of Bengal, and Arabian Sea; and typhoons in the China Sea.

2. In these storms the wind always revolves the same way in the same part of the world, that is, against the movement of the hands of a watch in the northern hemisphere, and with the hands of a watch in the southern hemisphere. The wind does not revolve in circles, but has a spiral movement, inwards, towards the centre.

3. Revolving storms have also, as a general rule, a progressive movement. Within the tropics they usually move from east to west at first, and then curve towards the pole of the hemisphere in which the storm is generated, and afterwards move from west to east.

4. The track which the centre of the storm takes is called the path of the storm, and the portion of the storm-field on the right of the path is known as the right-hand semicircle, and that on the left as the left-hand semicircle of the storm.

5. In the right-hand semicircle, if the observer be stationary, the wind will always shift to the right, and in the left-hand semicircle to the left. This law holds good in both hemispheres.

6. If a vessel be so situated in a storm that running before the wind the path of the advancing storm will be crossed, this is considered to be the dangerous semicircle. This will always be the right-hand semicircle in the northern hemisphere, and the left-hand in the southern.

7. These storms are most frequent in the northern hemisphere from July to November, and in the southern hemisphere from December to May. In the Bay of Bengal and Arabian Sea they, however, occur most frequently about the time of the change of the monsoon.



8. The area over which revolving storms have been known to extend varies in diameter from 20 miles to some hundreds of miles, and their rate of movement in the West Indies averages about 300 miles a day; in the China Sea, Bay of Bengal, and Arabian Sea about 200 miles a day; and in the Indian Ocean from 0 to 200 miles a day, the more stationary storms occurring at the beginning and end of the hurricane season.

9. The indications of the approach of a revolving storm are (1) an unsteady barometer, or even a cessation in the diurnal range, which is constant in settled weather; (2) a heavy swell not caused by the wind then blowing; (3) an ugly, threatening appearance of the sky.

10. In order to judge what is the best way to act if there is reason to believe a storm is approaching, the seaman requires to know (a) in which direction the centre of the storm is situated, (b) in which semicircle the ship is situated.

11. As these points cannot be determined if a vessel is moving with any speed through the water, the first proceeding should be to "stop" or "heave to," and, as it is always best to assume, at first, that the vessel may be in the dangerous semicircle, she should be hove to on the starboard tack in the northern hemisphere, and on the port tack in the southern.

12. If an observer faces the wind the centre of the storm will be from 12 to 8 points on his right hand in the northern hemisphere, and on his left hand in the southern hemisphere; 12 points when the storm begins; about 10 points when the barometer has fallen three-tenths of an inch, and about 8 points when it has fallen six-tenths of an inch or upwards.

13. If the wind shifts to the right the vessel is in the right-hand semicircle, if to the left in the left-hand semicircle, and, if the wind is steady in direction, but increasing in force, she is in the direct path of the storm.

14. If the seaman has reason to think that his vessel is in the direct path of the storm he should run with the wind on the starboard quarter in the northern, and on the port quarter in the southern, hemisphere until the barometer has ceased falling. If she is in the right-hand semicircle in the northern hemisphere she should remain hove to on the starboard tack, but if in the southern hemisphere run with the wind on the port quarter; if she is in the left-hand semicircle in the northern hemisphere she should run with the wind on the starboard quarter, but if in the southern hemisphere remain hove to on the port tack.

15. Should a vessel not have sufficient room to run when in the least dangerous semicircle, she should heave to on the port tack in the northern, and on the starboard tack in the southern, hemisphere.

16. If in a harbour or at anchor the seaman should be just as careful in watching the shifting of the wind and ascertaining the direction of the centre, as by so doing he will be able to tell on which side of the path of the storm he is situated, and be able to act according to circumstances.

17. Should the centre of a storm pass over a vessel, the wind, after blowing furiously in one direction, ceases for a time, and then blows with equal fury from the opposite direction. This makes a confused pyramidal sea, which is especially dangerous.



**IN THIS WORK THE BEARINGS ARE ALL TRUE, IN DEGREES, FROM 0° (NORTH) TO 360°, MEASURED CLOCKWISE.**

**THE BEARINGS OF LIGHTS ARE GIVEN FROM SEAWARD.**

**THE LATITUDES AND LONGITUDES GIVEN IN THE TEXT ARE APPROXIMATE.**

**THE VARIATION GIVEN IN THE SEVERAL PAGES IS FOR THE YEAR 1916.**

**THE DISTANCES ARE EXPRESSED IN NAUTICAL MILES OF 60 TO A DEGREE OF LATITUDE.**

**A CABLE'S LENGTH IS ASSUMED TO BE EQUAL TO THE TENTH PART OF A NAUTICAL MILE.**

**THE DEPTHS ARE GIVEN AT MEAN SEA LEVEL, WHERE NOT OTHERWISE STATED.**

**HEIGHTS ON THE LAND ARE GIVEN ABOVE MEAN SEA LEVEL.**

**WHEN SHADING IS USED TO INDICATE COLOURS OF FLAGS, TIDAL LIGHT SIGNALS, OR BEACONS, IT IS AS FOLLOWS:**



Yellow.



Red.



Blue.

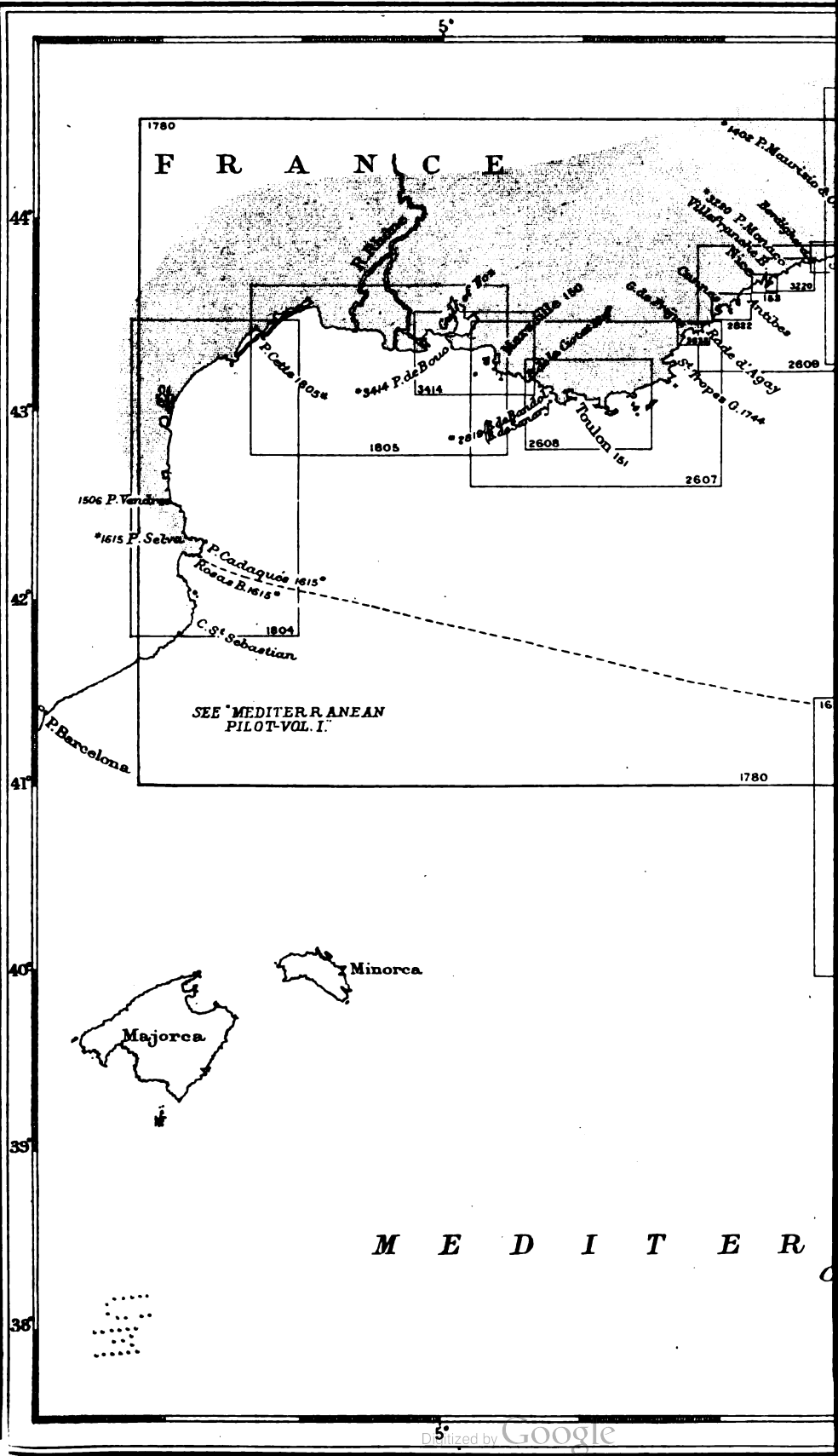


Green.



Black.





F R A N C E

SEE "MEDITERRANEAN  
PILOT-VOL. I."

M E D I T E R

For all details of the Lights and Fog Signals which are included in this work, seamen should consult the Admiralty List of Lights, Part V. This List is published early in every year, corrected to the preceding 31st December.





# THE MEDITERRANEAN PILOT, VOL. II.

## CHAPTER I.

GENERAL INFORMATION.—SOUTH COAST OF FRANCE.—CORSICA.—  
ITALY.—WINDS AND WEATHER.—CURRENTS.—BUOYAGE.—  
PILOT AND FISHING VESSELS' LIGHTS.—PORT REGULATIONS.  
—TUNNY FISHERIES.—COMMUNICATION.—COAL.—DOCKS.—  
PASSAGES, ETC.

*Chart 2158a, Mediterranean sea, western sheet.*

**The SOUTH COAST of FRANCE**, between Caps Cer-  
bère and Martin, is about 400 miles in length, and is the seaboard of  
the departments of Pyrénées Orientales, Aude, Hérault, Gard,  
Bouches du Rhône, Var, and Alpes Maritimes. 5

Deeply indented by the Gulf of Lyons, and broken by many  
smaller gulfs and bays, the coast presents a great variety of feature :  
—between Port Vendres and Marseille the land is low and marshy,  
with a sandy beach enclosing numerous étangs or salt lagoons ; east-  
ward of Marseille the coast becomes bold and rocky, rising in precipitous  
headlands. Within a moderate period of time alluvial deposits  
have claimed considerable accessions of land from the sea, particularly  
near the mouths of the Rhône. 10

The coast is generally clear and can be approached in most places  
to a mile ; there are several sheltered and commodious harbours and  
anchorages. 15

The Tet, Aude, Hérault, Rhône, and Var are the principal rivers ;  
they are, however, navigable only by very small vessels.

The greatest elevations near the coast are the Puig de Saillfore (on  
the eastern fall of the Pyrenees, and on the boundary between Spain  
and France), 2,605 feet high ; Montagne de Saint Cyr, or Carpiagne  
(near Marseille), 2,119 feet ; Le Coudon and Mont des Pomets or de  
Caumes (near Toulon), 2,284 and 2,612 feet, respectively ; and Mon-  
tagne Saint Pierre (in the department of Var), 1,362 feet. 20

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

**The climate** of the south of France is very variable; the summer is excessively hot, and the country appears scorched by the intense heat; the sky assumes a copper tint which overspreads everything  
5 with a lurid glare, the air is loaded with dust, and the hills, as there is no vegetation or soil, present the appearance of bare masses of rock. Frequently there is no rain in June, July, and August, and usually the rainfall in those months is very small. The great heat occurs between the middle of July and the end of September, but in  
10 summer the heat alternates with severe cold, the sudden changes being caused by the mistral. The mistral or north-west wind, which prevails chiefly in winter and spring, is a violent, bitterly cold, and dry wind, filling the air with a yellow haze. From December to February, however, the weather is very fine except during mistrals.

**Ports.**—The principal ports on the south coast of France are Marseille and Toulon; there are also the smaller ports of Port Vendres, Cette, Bouc, Saint Tropez, Cannes, Antibes, Nice, Villefranche, Monaco, and Mentone.

**Trade.**—The commerce of this part of France is very considerable; the chief exports are wines and spirits, silk, sugar, soap, cork,  
20 salt, wheat, and flour. The vine, orange, citron, olive, fig, pomegranate, and mulberry are largely cultivated. There are fisheries of anchovy, sardine, and tunny.

*Chart 1131, Island of Corsica.*

**CORSICA** (Ile de Corse) (ancient Cynros), belonging to France, is about 100 miles in length north and south, 45 miles in breadth, of an irregular but somewhat oval figure, tapering to the northward and forming a promontory nearly 20 miles in length; the area of Corsica is 3,377 square miles within a coastline of 388 miles. Its north  
30 extreme is about 92 miles south-eastward of Cap Martin in France, and 45 miles westward of the coast of Italy; the sea separating it from the Gulf of Genoa is known as Golfo Ligure. The Strait of Bonifacio, between Corsica and Sardinia, to the southward, is about 6 miles wide. The east coast of Corsica is mostly a fine alluvial plain;  
35 the west coast is steep, rising abruptly to the mountains, and several extensive bays afford good roadsteads and secure harbours for coasting vessels.

A chain of granitic mountains traverses the island from north to south; Mont Cinto 8,898 feet, Mont Rotondo 8,626 feet, and Mont  
40 d'Oro (the Mons Aureus of Ptolemy) 7,845 feet high, the summits, are covered with snow nearly throughout the year. The declivities of the central chain are steep, with numerous clefts and gorges; valleys are few, excepting in the lower hill ranges, and even there they are narrow. There are no navigable rivers; the principal streams

*General chart 449.*

*Chart 1131, Island of Corsica.*

are the Golo, Tavignano, Fium-Orbo, Abatesco, and Solenzara on the east, and the Taravo and Liamone on the west. The east coast is bordered in places by low plains, through which the rivers have to make their way; the marshes and lagoons thus formed are hotbeds 5 of malarial fever in summer, when the natives migrate to the hills.

A line from Belgodère, near the north-west coast, through Corte to the east coast near Favone, divides the island into two parts, which are geologically distinct. Westward of the line the island is chiefly granite, with large masses of granophyres, quartz, porphyries, and similar 10 rocks forming the high mountains round Mont Cinto, but between the Gulfs of Porto and Galeria, schists, limestones, and anthracite, containing fossils of upper carboniferous age, occur. In the eastern part of the island the predominant rocks are schists of unknown age, with intrusive masses of serpentine and euphotide. 15

A large part of the country is covered with brushwood, but the forests are remarkably fine, and abound with timber, birch, oak, pine, ilex, cork, and chestnut. Corsica is exceptionally rich in mineral springs, the most important being at Orezza, where the waters are more impregnated with iron than any other similar spring in Europe. 20 Pietrapola, with its hot sulphur springs, is an excellent place for rheumatic cases; there are other springs at Puzzichello, Guagno, Caldane, Guitera, and Pardina. Game is abundant in places, and includes wild duck, plover, partridges, quail, woodcock, and snipe; wild boar are abundant on Cap Corse peninsula, but the moufflon is 25 practically extinct; trout are found in the streams and in the pools in the interior, especially at Ponte Leccia. There is a close season for game.

The chief industry is the rearing of live stock, such as horses, sheep, and goats. The Corsican horse is small, hardy, willing, and swift. 30 Owing to the absence of meadows the goat takes the place of the cow. Goat's milk, butter, and cheese are abundant; the latter is the famous Roquefort, of which there are nearly 50 dairies in the island. Much time is devoted to general agriculture. The products are timber, honey, olive oil, and fruits; fish are caught along the coast, 35 but principally by Italians. Minerals of various kinds exist, including lead, silver, copper, and antimony, but the lead mines at Argentele, southward of Cap Cavallo, the copper mines near Murato, southward of Saint Florent, and the antimony mines at Luri on Cap Corse peninsula are the only ones worked. There are vast amounts of 40 granite, porphyry, serpentine, and marbles. Asbestos of excellent quality is produced; coral is procured off the west, and sponges off the east, coast of the island. The manufactures of the island are of small importance; they include the extraction of gallic acid from chestnut bark, the preparation of preserved citrons, macaroni, and 45

*General charts 1780, 2158a, 449.*

*Chart 1131, Island of Corsica.*

similar foods, besides other delicacies, and the manufacture of fancy goods and cigars.

5 The principal articles imported into Corsica are spirits, coal, glass and earthenware, forage, building materials, hardware, potatoes, textiles, sugar, &c.; and those exported are wine, mineral water, timber, charcoal, antimony and copper ores, citrons, fruits, chestnuts, bark for tanning, gallic acid, cork, &c.

10 The population of Corsica in 1911 was 288,820, including 12,000 foreigners, mostly Italians.

15 There is a railway from Bastia to Ajaccio, with a branch to Ile Rousse and Calvi; also along the east coast of the island from Casamozza to Ghisonaccia, which is to be continued to Bonifacio. The island roads are excellent. Telegraph cables are laid to Nice, Leghorn, and Toulon.

**Ports.**—There are sixteen commercial ports, the most important being Bastia, Ajaccio, Propriano, Bonifacio, Ile Rousse, Calvi, Saint Florent, Centuri, and Macinaggio.

20 **Climate.**—Corsica presents a succession of climates; there is that of the coast and plain, extending inshore to an altitude of 300 feet, which is a winter climate—hot like the parallel coasts of Italy and Spain; then, from 300 to 1,800 feet, a mountain and sea air combined—this is also a winter climate; and, from 1,800 to 4,500 feet, a mountain climate, which is a summer one. In April and May the  
25 weather is pleasant, and this is the best time for travelling. In June, though the sun is hot, the air is agreeable and invigorating, but from July to September, inclusive, the island should be avoided on account of the malaria. The average annual rainfall at Ajaccio is 27 inches; long droughts prevail in summer.

30 **History.**—The earliest inhabitants of Corsica were probably Ligurian. The Phœceans of Ionia were the first civilised people to establish settlements. They landed in the island about 560 B.C., and founded the town of Alalia. At the end of the 6th century, however, their power had dwindled before that of the Etruscans, who were, in  
35 their turn, driven out by the Carthaginians. The latter were followed by the Romans, who gained a footing in the island during the first Punic war. During the break up of the Roman Empire in the west the possession of Corsica was disputed by the Vandals and the Goths, and thence to 1460, when it was bought by the Italian bank of San  
40 Giorgio, the island was held by Romans, Moors, Tuscans, the Popes of Rome, Pisans, and Genoese, and was a constant scene of struggle.

Corsica was first conquered by the French (assisted by the Turks) in 1556, but it remained in a constant state of rebellion until 1736, when the German adventurer, Baron Theodore von Newhof, was

*General chart 449.*

*Chart 1131, Island of Corsica.*

given the crown of Corsica by the people, and ruled as King Theodore until he departed in 1743. The island was sold to France by the Genoese in May, 1768, and, except for British occupations, 1794-96, and a short period in 1814, has since been held by them.

5

*Chart 2158a, Mediterranean sea, western sheet.*

**ITALY** is bounded on the north by the Alps, on the east by the Adriatic, and on the west and south by the Mediterranean; its greater portion is a large peninsula extending about 500 miles south-eastward, and varying from 70 to 150 miles in breadth, the southern part of which is deeply indented by Golfo di Taranto.

10

The Kingdom of Italy includes Sicily, Sardinia, the Tuscan archipelago, Lipari islands, and several smaller groups, having a total area of 110,659 square miles.

Sicily, Sardinia, and the Lipari islands are described in Mediterranean Pilot, Vol. I.

15

The population by the census of 1911 was 34,686,683.

The west coast of Italy, southward of the Gulf of Genoa to about the Bay of Naples, is in general low and sandy, fronting a considerable extent of marsh and swamp, the country round which is thickly wooded, especially near the mouths of the Arno and Tiber. In places it is high, or bold and precipitous. The coast of the south-western extreme of the peninsula from Scilla to Capo Spartivento is high, steep cliffs. Thence north-eastward to the Golfo di Squillace, it is at first high, the shores of the Golfo di Taranto becoming gradually lower. There are many bays or gulfs, which are bounded by prominent and elevated headlands; the principal are the Gulfs of Genoa, Gaeta, Naples, Salerno, Policastro, Eufemia, Gioja, Squillace, and Taranto.

20

25

Changes in the levels of the coast have been caused by volcanic agency, and the coasts have extended, chiefly in the vicinity of the Tiber, from alluvial deposits. Although generally low, the coast is bold, there being depths of 5 fathoms a mile off-shore, except off Leghorn, southward of Capo Linaro, and off Punta Licosa.

30

The principal rivers are the Arno, Cecina, Ombrone, Tiber, Garigliano, Volturno, Brodano, and Basento; the estuaries of these rivers, with the exception of the Tiber, are shallow and admit only very small vessels.

35

The peninsula is traversed by the Apennine (Appennini) range, which to the southward approaches the Calabrian coast; Gran Sasso d'Italia or Monte Corno, its highest peak, situated about 58 miles east-north-eastward of Rome, is 9,160 feet high, and covered with snow for about nine months annually. The greatest elevations within 6 miles of the coast are Monte Carmo, on the west side of the Gulf of Genoa,

40

*General chart 449.*



*Chart 2158a, Mediterranean sea, western sheet.*

4,557 feet high; Altissimo, near Spezia, 5,213 feet; Petrella, near Gaeta, 5,030 feet; Vesuvius, 4,012 feet; and Cocuzzo, near Belmonte (Calabria), 5,056 feet high. Reggio mountains are 5,640 feet high.

- 5 The country around and to the southward of Naples is a vast volcanic region; Vesuvius is the only active volcano in the mainland; there are also Ætna in Sicily, and Stromboli and Vulcano in the Lipari islands.

- Climate.**—The northern region of Italy, coinciding with the valley of the Po, has a short, warm summer, and large daily ranges of temperature. Places on the Alpine slope have a mild winter relatively to their elevation and to those lying along the axis of the valley. Towards the Adriatic both the annual mean and the winter mean increase. Very low temperatures have been recorded at Padua, Milan, Turin, and Alessandria.

In central Italy, westward of the Apennines, the mean temperature is about 58°, and the annual range 91°.

- In Calabria, Basilicata, and Apulia, the south-eastern part of the peninsula of Italy, the annual mean temperature varies from 61° to 64°, and the difference between summer and winter is only 25°. Here the warmth is greater from November to March, inclusive, than in the northern regions of the peninsula, and it does not appear that the summer heat increases in Italy to the southward. August is warmer than July in this south-eastern region.

- 25 In southern Italy there are two seasons, a wet and a dry, whereas in northern Italy there are two maximums and two minimums, the rain falling abundantly and being accompanied by storms, especially in May and June. The distribution of rain is so irregular that the fall at adjacent places may differ considerably.

- 30 In summer Italy is not affected, directly or indirectly, by the cyclones of the Atlantic, and the numerous storms are due to local winds. In spring and autumn also, though the great cyclones pass eastward in low latitudes, they seldom impinge directly on Italy, but the danger from secondary disturbances is greater when anti-cyclones bar the passage of a cyclone to the east, or when great barometrical depressions lie over the land or seas of Italy. The storms of winter sometimes, and these the most violent, pass southward of the British islands, impinging on the Alps between Mont Blanc and the Maloja pass; others descend from the Baltic; others, again, reach the west coast from the Gulf of Gascony and Spain, while storms from the Strait of Gibraltar visit the southern parts of Italy.

**Products.**—The country is highly productive, abounding in much mineral wealth, especially iron and lead; there are numerous mineral and thermal springs, and the white marble quarries of Carrara are

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

famous. The forests produce a variety of timber, including the chestnut, which affords also an important article of food; the vine, olive, orange, lemon, almond, fig, date, melon, and mulberry are very extensively cultivated, the latter chiefly for the rearing of silkworms. In the rivers and on the coast fish are caught in abundance; the anchovy, sardine, and tunny fisheries employing in the season a large number of men; sponges and coral are also procured.

**Ports.**—The chief ports and anchorages within the limits of this volume are Savona, Genoa (Genova), Spezia, Leghorn (Livorno), Civita Vecchia, Gaeta, Naples (Napoli), and Taranto on the mainland, and Ferrajo in Elba. There are arsenals and naval depôts at all these places except Savona, where there are large ironworks, armour-plates and steel rails being manufactured. The iron industry on the coast from Savona to Spezia is the most important industry of the district. At Leghorn there are large iron-rolling mills.

**Shipping.**—The commercial marine in 1911 consisted of 1,800 vessels, 450 of which were steam vessels, with an aggregate tonnage of 987,550 tons.

**Trade.**—The chief imports were cotton, wheat, coal, coke, chemicals, colonial produce, yarns, jute and manufactured goods, woollens, raw silk, silkworms' eggs and cocoons, machinery, iron and steel in bars, plates, and rails, hardware, raw hides, horses and cows, fixed oils, salt fish, dye stuffs, tobacco, and earthenware. The exports consisted of olive oil, wine, candied citron, sienna earths, pastes, coral, rags, boracic acid, raw and thrown silk, hemp, cattle, straw hats, rice, iron, zinc and copper ores, sulphur, marble, fruit, vegetables, fresh and prepared meats, poultry, chemical products, woods, roots, &c., for dyeing and tanning, artistic works, &c. In 1912 the value of the imports was £149,113,121, and of the exports £97,536,100.

*Chart 158, Cape Cavallo to Civita Vecchia.*

**The Tuscan archipelago** (Arcipelago Toscano), situated between the west coast of Italy and the northern part of Corsica, consists of the islands Gorgona, Capraia, Elba, Pianosa, Monte Cristo, Giglio, and Giannutri, the small islets Palmajola and Cerboli, and the Africa and Formiche di Grosseto groups of rocks.

**WINDS AND WEATHER.**—Chapter I. of Mediterranean Pilot, Vol. I., contains a description of the winds and weather in a portion of the western basin of the Mediterranean, together with other remarks common to the whole of that sea, and should be seen by the navigator.

*Chart 2158a, Mediterranean sea, western sheet.*

**GULF OF LYONS.**—The winds in the Gulf of Lyons are very variable and uncertain, but generally westerly winds predominate from

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

May to September, and easterly from October to January. A peculiarity in the Gulf of Lyons is the sudden rising of the sea, and the waves attaining a size exceeding that due to the force of the wind.

5 The mistral, or north-west wind, prevails throughout the year, and during winter and spring is often very violent, blowing hardest at mid-day and moderating towards evening; it sometimes lasts three and even nine days. In summer north-west winds are sometimes strong, but not often violent, and the weather is usually fine and clear; at this season, and particularly in August on the coasts of  
10 Bouches du Rhône and Var, the wind moderates towards noon, freshens again from 2h. to 3h. p.m., and falls at sunset; should the wind continue after sunset it will probably be stronger the next day. North-west winds are generally stronger after showers than after  
15 heavy rain.

Northerly winds often occur in winter, and although sometimes strong are usually accompanied by fine weather; the barometer is high, the sky clear, and the air cold.

Orsure, or north to north-north-east winds, are sometimes extremely  
20 violent, but are of rare occurrence; while they last the coast is unapproachable to a sailing vessel.

Easterly winds in summer are usually light, and the weather is fine. An east wind in the middle of the gulf shifts to south-east on its western shore, and to north-east on its north-eastern shore, both  
25 in winter and summer. In winter easterly winds are rainy on the north-eastern shore of the gulf; south-east winds are accompanied by sombre dismal weather, and are dangerous; on the first indication of their approach shelter should be obtained as quickly as possible, for the land quickly becomes obscured. These south-east winds are  
30 the more dangerous, if when from the westward, south-west winds with thick weather have been experienced off the coast of Catalonia.

South-west winds occur occasionally; in summer they are generally light, shifting to south-east and east, with fine weather towards the eastern side of the gulf. In winter south-west winds are seldom very  
35 strong, but when they are the north-eastern shore of the gulf becomes very dangerous on account of the heavy sea, and the land being obscured.

**Gales.**—The Gulf of Lyons is notorious for bad weather; north-west gales are greatly dreaded in winter, when sometimes the weather  
40 is fine and dry, the sky clear, and the wind hauls to the northward near the north-eastern shore of the gulf, but usually, however, the squalls are violent, the sky overcast, and heavy rain and occasionally snow fall.

Generally gales from north-west, shifting through north, to south-east in the gulf, are north-east gales on the coast of Catalonia, and  
45 gales from south-east shifting, through south, to west, in the gulf are

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

south-west on the coast of Catalonia. Gales from south-west often back to the southward in the middle of the gulf, and to south-east and east on the north-eastern shore.

During south-east or south-west gales take every precaution; besides driving the water into the gulf, they cause a very heavy sea and blow furiously in the squalls. 5

North-west gales on the north-eastern shore of the gulf in winter usually commence at north-north-west and back to the westward; if they back to south-west the sea becomes very heavy, the weather thick, and very heavy rain falls. It sometimes happens at this season, especially when the mountains are covered with snow, that the wind, though strong in the gulf, does not approach the coast, where at the time there are light breezes from north-west to north-east. Under these circumstances though the sky may be clear, there are heavy clouds round the horizon which, as a rule, denote that there is bad weather seaward. Sudden shifts of wind from east to west are common, particularly in the middle of the gulf in bad weather. 10 15

If after overcast rainy weather at the entrance to the Gulf of Lyons, the horizon to the northward clears, while clouds rise rapidly and are dispersed or broken overhead, there is every probability of a violent north-west gale. The wind rises very quickly, and in a short time blows furiously; a heavy sea rapidly gets up and the weather is frequently so bad as to leave no alternative but to run for shelter under the lee of the island of Sardinia. 20 25

Sometimes these gales spring up in the midst of a calm, and when the weather is clear; at these times the atmosphere becomes very clear and transparent, the land can be seen from a great distance, and the sea is quite smooth.

If the barometer under these circumstances falls suddenly a north-west gale is approaching. 30

When a breeze commences in the afternoon, and freshens about sunset, it may be expected to blow strong at midnight; hard gales are sometimes preceded by a heavy swell and surf.

**Coasts of Bouches du Rhône, Var, and Alpes Maritimes.**—The bad weather season on these coasts extends from December to March, inclusive. Westerly winds prevail from May to September, and easterly from October to January, but especially in October. 35

From March to September land and sea breezes are frequent, but only in the day; they commence before sunrise, light from north-east to east-north-east, veering to the southward and increasing in strength. At noon the wind is from south to south-south-west, veering to the westward in the afternoon, and falling at sunset. Fresh westerly 40

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

breezes often at this season succeed the light morning north-easterly breeze; at sea they are fresh, but near the coast they decrease at sunset; if they continue after, the wind will be very fresh the next day.

- 5     **Contrastes** (opposing winds) are often experienced on these coasts, especially near Cap Sicie, a strong north-west wind blowing on the west side of the cape, while at the same time it is from the eastward in Baie de Toulon and among the îles Hyères.

- 10     **Thunderstorms** occur frequently in the Gulf of Lyons, including the coasts of Bouches du Rhône and Var, during September and October; on the latter coast also in March, and sometimes in April and May.

**GULF OF GENOA.**—Bad weather is rarely experienced on the shores of this gulf, even in winter, especially between Nice and Genoa.

- 15     In spring, on the coast of Genoa, where the land is high, the weather is fine, but the winds off the land are very strong, with heavy gusts from the ravines.

- Violent north-west winds blow sometimes during the day on the western shore of the gulf, but they rarely continue after sunset,  
20 particularly eastward of Bordighera, where it is nearly always calm while the wind is blowing to the westward. These are the winds that the inhabitants of the town of Nice and the adjoining coast dread so much, from the piercing cold that accompanies them.

- As the gulf is surrounded by high mountains, the wind off the land  
25 is occasionally very violent at the head of the gulf in winter, the weather is overcast and rainy, and the squalls are very severe. These winds blow from north-north-east in the middle of the gulf, north-east at Capo delle Mele, east on the coasts of Var and Alpes Maritimes, and north-west on the coasts of Tuscany and Isola d'Elba.

- 30     Winds from south-west to south-east rarely extend with their full force to the head of the gulf, particularly during winter, when there is snow on the mountains; the south-west wind is loaded with moisture, and raises the level of the water on the coast, it also sends in a heavy sea. A south-west wind has, however, blown with violence at  
35 Genoa and Leghorn, causing great damage, but this is exceptional.

- CORSICA.—North coast.**—On the north coast of Corsica the climatic conditions are similar to those in the Gulf of Genoa. The westerly wind, or "libeccio," which frequently blows at all seasons, has a tendency to move to the south-west; it raises a very heavy sea  
40 on the coast between Gargalo and Cap Corse. The east coast of the peninsula is protected from these winds, but between Cap Corse and Bastia the force of the wind, at the opening of some of the valleys, is much increased, and violent squalls descend from the mountains, sometimes even when there is a moderate westerly breeze on the west

*General chart 449.*

*Chart 2158, Mediterranean sea, western sheet.*

coast. At the base of the mountains, and especially at Bastia, these squalls are violent, and in summer hot and withering.

The westerly wind is always preceded by a low barometer and an exceptional rising of the sea level. Whilst it is blowing immovable clouds, named “balles de coton,” cover the mountains. 5

Northerly winds are most frequent in winter; when the wind shifts to the north-west, which is not frequent, it takes the name of “mistral,” but this is not the same as the mistral of the Gulf of Lyons, as when the mistral is blowing at Marseille the wind is west and south-west on the north coast of Corsica. Generally the northerly wind shifts to north-east, and becomes a tramontana with a high barometer. In winter a libeccio gale with a low barometer is often followed by a north-easterly gale as soon as the barometer rises. 10

When there is snow the wind generally moderates near the coast. 15

When easterly winds are blowing on the east coast of Cap Corse it produces much the same effect on the west coast as the libeccio does on the east, but the squalls are not quite so violent.

**East coast.**—The force of the libeccio is very much diminished southward of Bastia, between that port and Porto Vecchio. On this coast, during summer, the sea is generally calm, as there is seldom an easterly wind. During winter, on the contrary, the easterly wind is always to be feared as it causes a heavy sea, and there is no shelter between these two ports; vessels anchored off this coast should get under way directly a swell sets in, as it generally precedes the wind by a few hours only. 20 25

**South coast.**—This coast is subject to westerly winds which blow very freely from north-west in the western part of the Strait of Bonifacio, and shift progressively to south-west in penetrating into the interior of the island and passing to the east coast. At Porto Vecchio westerly winds produce violent squalls, which are dangerous for small vessels. 30

The south-westerly wind is very rare in summer in the west part of Bonifacio strait. In winter it blows with ordinary force at the beginning of the gale, but is like the mistral in the Gulf of Lyons, and it lasts, as at Marseille, for at least three days, with the same increase and decrease of strength as there. When these gales are blowing the sea becomes very heavy at the entrance to Bonifacio strait. 35

Easterly winds are most frequent in winter. They blow generally from north-east on the east coast, but shift to east and south-east in the strait. 40

**West coast.**—North-westerly winds predominate on this coast. Generally one is able to forecast the direction from which winds will

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

come by clouds settling on the mountains on the opposite side to which the wind is coming. A haze on the summits generally indicates a calm. The general easterly winds are little felt on the west coast, but their  
5 presence is known by the choppy sea, which breaks on the coast.

**Thunderstorms** are frequent at Corsica from July to October, inclusive.

**ITALY.—West coast.**—This coast is greatly sheltered by Corsica and Sardinia; in the area between, the weather is generally  
10 fine with light variable breezes from north-east to east and south-east, while on the coast land and sea breezes prevail.

Westerly winds are rare, except when a north-west, west, or south-west gale is blowing to the westward of the islands; these winds are then felt as squalls on the coast, particularly to the southward of  
15 Sardinia, but they are rarely felt at Naples. In general, when a westerly wind is blowing, with fine weather westward of the islands, the wind eastward of them is south-east.

During winter and early part of spring south-east gales are not unfrequent, especially on the northern part of the coast from Civita  
20 Vecchia to Leghorn, but at Naples they seldom occur. These winds commence with gloomy drizzling weather, which becomes very thick, with heavy rain, as the wind freshens; the weather clears as the wind veers to the southward and westward, but it often flies to the westward in a violent squall. After blowing hard from this quarter for  
25 several hours it usually hauls gradually to the north-west and moderates, but should it back to southward of west, the south-east gale will return. These gales are very disagreeable at Leghorn and send a heavy sea into the harbour.

When a south-west wind passes eastward of the islands, it throws  
30 a heavy sea on the coast, while the weather is very bad and overcast, with continual rain; these winds are of short duration, and usually diminish in force during the night.

**Raggiature** (land squalls) often descend with great force from the ravines and valleys in the high land, but they extend only a short  
35 distance off-shore. In Golfo di Gioja these squalls sometimes blow whilst there is a south-west breeze in the offing.

**CURRENTS.—Gulf of Lyons.**—During fine and dry weather the water appears to be drawn into and towards the head of the gulf, although the wind may be blowing from north to north-  
40 east off the land. Winds from east, through south, to south-west also cause a current to run into the gulf, but it follows the direction of the wind, and increases in rate as the gulf is entered. North-west winds drive the water out of the gulf, causing a southerly current of from one to 2 knots to run towards both the outer

*General chart 449.*

*Chart 2158a, Mediterranean sea, western sheet.*

shores. On the east side the easterly current is often so strong as to prevent a sailing vessel working to windward against it. There is believed to be a permanent westerly set close inshore along the east side of the gulf, which is, however, much influenced by the prevailing 5 wind.

**Coasts of Bouches du Rhône, Var, and Alpes Maritimes.**—The current on these coasts generally sets westward following the contour of the land; thus from Capo delle Mele to Antibes its direction is about south-west, and thence to Marseille westerly, running at times among les Îles Hyères with great strength. This current is often modified and sometimes reversed by gales of wind, for during and after north-west gales in the Gulf of Lyons it runs eastward between Marseille and Toulon. Occasionally after levanters in the Mediterranean an easterly current is experienced inshore off Toulon. 10 The British vessel *Chiltern*, when laying the submarine cable between Antibes and St. Florent, Corsica, in August, 1879, experienced a west-south-west current with a rate of  $1\frac{1}{2}$  to 2 knots. And it is stated that during June, July, and August—the period during which the melted snow of the Alps discharges into the Mediterranean 20 —this south-westerly set has been felt some 45 miles off the land.

**Gulf of Genoa.**—In the Gulf of Genoa the currents follow the trend of the shore from east to west, and are generally felt at a distance of from one to 2 miles; they are strongest in the immediate vicinity of headlands. At Capo di Noli, Capo Lena, and Capo delle 25 Mele the westerly currents attain their greatest strength.

Although no regular study has been made of the coastal currents, sufficient data exist to be able to state:—That their mean rate is one knot; that their greatest rate is on the Western Riviera when strong northerly winds prevail; it then occasionally reaches 30 2 knots; that generally when a westerly current is running off capes and headlands there is a weaker easterly current inshore; that when a scirocco is blowing or commencing in the open, currents in the vicinity of headlands set westward.

In the middle of the entrance to the gulf the currents are very 35 variable, and much affected by the force and direction of the winds. With south-west winds the height of the water in the gulf rises much above the usual level, and afterwards a southerly current sets out of the gulf.

**Corsica.**—In the Strait of Bonifacio the currents follow the direction of the wind at a rate depending on its force, but sometimes the current precedes the wind by many hours. After north-westerly gales a current with a rate of 2 knots sets eastward through the strait. 40

*General chart 449.*



*Chart 2158a, Mediterranean sea, western sheet.*

- ITALY.—West coast.**—On the coast between Leghorn and the Strait of Messina the currents are very variable, being subject to the force and direction of the winds. From Civita Vecchia to Naples, however, they set most frequently north-eastward near the land, and the mariner must guard against them, particularly in very fine weather. The gales in the Gulfs of Lyons and Genoa have a great influence on the currents off this coast; with winds from north to north-west in the former gulf the current at Cap Corse sets east, and amongst the Tuscan archipelago, east-south-east.

- With strong winds from south-west, or a continuance of the libeccio or gusty gales from the same quarter, the water on this coast is at times raised as much as 12 feet above the ordinary level. During these winds the current sets east at Cap Corse, north and north-east between Corsica and Italy, and north-east on the coast, but after these winds, especially if they are followed by northerly winds in the Gulf of Genoa, the current sets in the opposite direction, sometimes with a rate of about 2 knots on the north side of Corsica.

- Owing to the irregularities of the currents, as above described, the navigator should use every opportunity of verifying the position when in this part of the Mediterranean.

**South-east coast.**—The currents on the south-east coast of Italy are weak, and vary with the winds.

- Note.**—Local currents are mentioned in connection with the places where they occur.

**SYSTEMS OF BUOYAGE.—France.**—The following system of buoyage is used on the coast of France:—

1. Starboard hand marks are painted red, and surmounted by a cone; if necessary, they are numbered by even numbers commencing from seaward.

2. Port hand marks are painted black, and surmounted by a cylinder; if necessary, they are numbered by uneven numbers commencing from seaward.

- NOTE.**—The term starboard hand means on the right side approaching from seaward; the term port hand, on the left side.

3. Separation of channel marks are painted white and black in horizontal stripes, and surmounted by two cones, bases together.

4. Junction of channel marks are painted white and red in horizontal stripes, and surmounted by two cones, points together.

5. Isolated danger marks are painted red and black in horizontal stripes, and surmounted by a sphere.

6. Buoys marking wrecks are painted green and surmounted by cones, cylinders, or spheres, according to Articles 1 to 5.

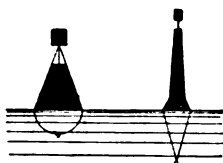
7. Names or numbers on marks are painted in white.

*General chart 449.*

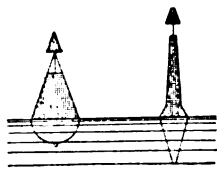
Beacons indicating sides of channels, points of junction or separation of channels, and isolated dangers, are painted similarly to buoys in the same positions, and are similarly surmounted.

## ILLUSTRATION OF SYSTEM.

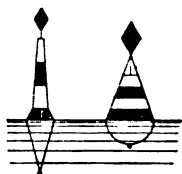
PORT HAND BUOYS.



STARBOARD HAND BUOYS.



## SEPARATION MARKS.



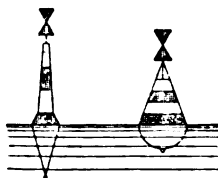
BUOYS.



BEACON TOWER.

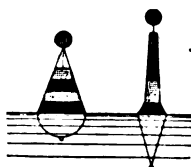
(Painted and with topmark according to position.)

## JUNCTION MARKS.



BUOYS.

## ISOLATED DANGER MARKS.



BUOYS.



BEACON.

**Italy.**—All buoys, beacons, and sea marks on the coasts of the kingdom will be painted thus:—red on the port, and black on the starboard, hand, when entering a port or channel. Notice will be given as the colours are altered, which will be carried out gradually. 5

**Wreck-marking vessels.**—On the coasts of France vessels marking wrecks are painted green, and lights are exhibited therefrom according to circumstances; there is no special rule. 10

Light-vessels or other craft marking wrecks in ports and roadsteads, and on the coasts of Italy, are distinguished as follows:—The top sides are coloured green.

**By day.**—Three balls are exhibited from a yard, 20 feet above the sea; two placed vertically on the side that shipping may pass, and one on the other side.

**At night.**—Three *fixed white* lights, similarly arranged, are exhibited.

Mariners pass on that side of the wreck-marking vessel on which the two balls or two lights are shown.

### **SIGNALS.—France.—Semaphore or signal stations.**

—On the coast of France the semaphore buildings are placed in conspicuous places, and they are all connected with the French telegraph system. Vessels can communicate with the semaphore stations by the International code of signals, and so with the owner or receive a message from him. Payment is made according to a fixed tariff.

**Distress signals.**—Should a shipping casualty occur near a signal station, the following signals will be hoisted at the International code signal mast:—

A black flag at the masthead indicates that the casualty has occurred in the immediate vicinity of the station.

A black flag at the yardarm indicates that the casualty has occurred to the right, looking seawards, of the station.

A black flag at the gaff indicates that the casualty has occurred to the left, looking seawards, of the station.

Guns may also be fired every five minutes to attract attention. See also Wireless telegraph signal, page 36.

**Weather signals.**—The following signals are hoisted at French semaphore stations and port offices for half an hour in the morning and evening, and indicate the weather existing at sea:—

A flag of any colour - - Weather doubtful; barometer inclined to fall.

A short pendant - - - Appearance of bad weather, heavy sea; barometer falling.

A pendant - - - Appearance of better weather; barometer rising.

A flag over a short pendant Entry into the port is dangerous.

A short pendant over a flag The lifeboat is going out.

No signal - - - Fine settled weather.

**Storm signals** on the coasts of France are made at the semaphore stations and port offices, and remain hoisted 48 hours from the time of receiving notice from the Central Meteorological Office of France, except directed otherwise by the office.

Signal.	Signification.
A cone, point upwards - -	Gale probable from north-westward.
Two cones, vertical, points upwards - - - - -	Gale probable from north-eastward.
A cone, point downwards -	Gale probable from south-westward. 5
Two cones, vertical, points downwards - - - -	Gale probable from south-eastward.
Two cones, vertical, bases together - - - - -	Gale of very great force probable.

The signals indicate that an atmospheric disturbance is approaching with the probable direction of the wind which may accompany it. 10

**ITALY.—Semaphore or signal stations.**—On the Italian coasts semaphore stations are generally (but not always) painted black and white in chequers.

The arrangements for signalling are similar—with the exception of the use of the semaphore arms—to those on the coast of France and elsewhere. 15

The stations are, as a rule, open from sunrise to sunset; but should vessels be in sight the station will remain open until such vessels are no longer visible; the station will also remain open if there be any special technical, military, commercial, or private reasons. The semaphores at Genoa, Isola Palmaria and Capo San Vito, Taranto, are open continuously day and night. 20

**Storm signals.**—The following storm signals are in use on the coasts of Italy:— 25

By Day.	At Night.	Signification.
A cone, point upwards -	A red light over two white lights, vertical.	Gale probable commencing from north-westward.
Two cones, vertical, points upwards.	ditto	Gale probable commencing from north-eastward.
Two cones, vertical, points downwards.	Two white lights over a red light, vertical.	Gale probable commencing from south-eastward.
A cone, point downwards -	ditto	Gale probable commencing from south-westward.
Two cones, vertical, bases together.	A red light between two white lights, vertical.	Gale probable, direction of wind uncertain.

**PILOTAGE.—Steering commands.**—The French system of steering commands, in which the terms starboard and port signify that the vessel's head is to go to starboard and port and not the helm, have been adopted by Italy.

**Pilot vessels.—Lights.**—Pilot vessels, when engaged on their station on pilotage duty, do not show the lights required for other 30

vessels, but carry a *white* light at the masthead, visible all round the horizon, and also exhibit a flare-up light, or flare-up lights, at short intervals, which shall never exceed *fifteen minutes*.

On the near approach of, or to, other vessels, they must have their side-lights lighted, and flash or show them at short intervals, to indicate the direction in which they are heading, but the *green* light must not be shown on the port side, nor the *red* light on the star-board side.

A pilot vessel of such a class as to be obliged to go alongside a vessel to put a pilot on board, may show the *white* light instead of carrying it at the masthead, and may, instead of the side lights above mentioned, have at hand ready a lantern with a *green* glass on the one side and a *red* glass on the other, to be shown as prescribed above.

A steam pilot vessel, exclusively employed for the service of pilots licensed or certified by any pilotage authority or the Committee of any pilotage district, when engaged on her station on pilotage duty and not at anchor, carries, in addition to the lights required for all pilot boats, at a distance of 8 feet below her *white* masthead light, a *red* light, visible all round the horizon, and of such a character as to be visible on a dark night, with a clear atmosphere, from a distance of at least 2 miles, and also the coloured side-lights.

When engaged on her station on pilotage duty, and at anchor, she carries, in addition to the lights required for all pilot boats, the *red* light above mentioned, but not the coloured side-lights.

Pilot vessels, when not engaged on their station on pilotage duty, carry lights similar to other vessels of their tonnage.

**Pilotage regulations.—France.**—On the coast of France all vessels must pay pilotage charges on entering or leaving ports, ascending or descending rivers, and shifting berth in anchorages when the distance the vessel is moved is 219 yards or more. Sailing vessels of less than 80 tons and steam vessels of less than 100 tons are generally exempt from pilotage charges, when they do not employ pilots; in some ports and rivers vessels of less than  $7\frac{1}{2}$  feet draught are also exempt.

Pilotage charges are generally calculated from the tonnage of the vessel, in some cases from the draught of water or the displacement, and in others according to the distance piloted; they are determined specially for each pilot station for laden sailing vessels of French nationality. Vessels in ballast pay half the charges for a laden vessel. With rare exceptions, a steam vessel pays half the charges for a laden sailing vessel of the same tonnage. Foreign vessels, not subject to the most favourable treatment, pay one-third or one-half more than the charges for French vessels of the same tonnage and nature. Vessels

under tow of a steam vessel generally pay half the charges for French sailing vessels. Vessels of the State, both French and foreign, and also yachts, pay generally half the charges for laden merchant vessels of the same tonnage, but in many stations there are special rates for these vessels. 5

The pilot boats, which are rigged either as cutters or sloops, are marked on each sail, and on each side of the sail, by an anchor painted in black or white, accompanied by the initial letter of the name of the station and the number of the boat. The boats, by day, whilst there is a pilot on board, carry a blue flag bordered by white 10 at the mainmast head, and at night the usual lights.

A vessel requiring a pilot by day should hoist at the foremast head a blue flag bordered by white (International code flag S.); foreign vessels can hoist their national flag bordered by white; at night, either at sea or anchor, vessels show a *white* light several times at intervals 15 of about fifteen seconds, burning also, if necessary, a *blue* light every fifteen minutes.

Every captain of a vessel subject to pilotage should, when approaching a port, road, or river, hoist the pilot signal until boarded by a licensed pilot of the locality or until clear of all dangers. 20

A captain who, in default of a licensed pilot, accepts the services of an unlicensed one, should keep the pilot signal flying.

The pilot stations are generally small in extent. When the pilots take a vessel outside the limit of their station they should hoist the signal for the pilot of the station which the vessel is about to enter, 25 and can only continue in pilotage charge until this pilot comes on board.

A pilot should not go on board an infected vessel, but should lead the vessel to the quarantine anchorage, giving the captain any necessary instructions. 30

**Italy.**—Every pilot vessel or boat is painted black with a white band 6 inches wide and 6 inches below the upper part of her sides, and has her name and the name of her port painted on the stern; the word “Pilota” is also painted in white letters on both bows and on the stern, and if the vessel is one of two or more belonging to a corpora- 35 tion, her consecutive number is marked after the word “Pilota.” The letter P is painted on both sides of each sail, in black if the canvas is white, and in white if it is coloured; a steam pilot vessel has her funnel painted black with the letter P in white on both sides.

The vessels carry at the mast head by day, a flag divided horizontally 40 into three equal parts; the upper part is blue, the middle white with the letter P in blue in its centre, and the lower part blue, and at night the usual lights.

A vessel requiring a pilot by day should hoist at the foremast head the national flag bordered by white, or the International code signal P.T., or the International code flag S. with or without the distinctive pendant above it, and at night burn the *white* pyrotechnic light, commonly called "*fontana*," *every fifteen minutes*, or show a brilliant *white* light for periods of about a *minute* at short intervals just above the side.

Every pilot vessel taking a pilot to a vessel gives notice of her intention by hoisting and lowering the distinctive flag several times by day, and at night by showing a *flashing* light at intervals not exceeding *fifteen minutes*. The master of a vessel having made the pilot signal must stop or otherwise permit the pilot to approach and make his boarding possible. Pilots are forbidden to take vessels in tow.

The pilotage dues include remuneration for the direction of mooring the vessel, provided the vessel is moored shortly after her arrival (the mean duration of this interval is given in the special pilotage regulations at each port).

A pilot detained on board a vessel longer than usual has a right to food and proper lodging at the expense of the owner; in this case, the pilot is entitled, besides payment as per tariff, to a remuneration of 10 lire a day or part of a day.

When a pilot is on board a vessel which cannot, owing to *force majeure*, or other unavoidable circumstances, be taken to her destination by the pilot, he remains on board until it is possible for him to resume the service, without any claim to increase of remuneration beyond that just mentioned. A pilot, going to meet a vessel at her request, has a right to an increase of one-quarter of the dues laid down for entry into the port, provided the vessel is met at a distance of not more than 10 miles, and the pilot has not had to wait more than 6 hours from the time of his leaving the port, but if the vessel is met more than 10 miles from the port, or the pilot has had to wait more than 6 hours, the pilot is entitled to a greater increase, the amount of which is determined, in the event of dispute, by the Maritime Authority.

A pilot who has been called by a vessel to establish communication with the shore, or who, with permission of the Maritime Authority, has been sent to establish communication with a vessel, is entitled to a remuneration of 50 lire, chargeable to the vessel in the first case, and to the interested parties in the second, when the vessel is not at a greater distance than 10 miles, but beyond this distance, the remuneration is increased, and in case of dispute is determined by the Maritime Authority.

A pilot going to meet a vessel in answer to a signal, or sent out to a vessel by request of those interested, is entitled to the usual remuneration, even when his services are not accepted.

Except when otherwise provided, a vessel taking a pilot both on entering and leaving a port, pays for the outward pilotage half the dues for entering. The bill for the pilotage dues is in the form of a note from the Maritime Authority.

**Light-vessels.**—French and Italian light-vessels do not carry any stay or secondary light to indicate how the vessel is riding. 5

**Fishing vessels.—Lights.**—The following regulations with regard to fishing vessels have been adopted by the French and Italian Governments:—

Fishing vessels and fishing boats, when under way, and when not required by these regulations to carry or show the lights hereinafter specified, shall carry or show the lights prescribed for vessels of their tonnage under way. 10

(a) Open boats, by which it is to be understood boats not protected from the entrance of sea water by means of a continuous deck, when engaged in any fishing at night with outlying tackle extending not more than 150 feet horizontally from the boat into the seaway, shall carry one all-round *white* light. 15

Open boats, when fishing at night with outlying tackle extending more than 150 feet horizontally from the boat into the seaway, shall carry one all-round *white* light, and, in addition, on approaching or being approached by other vessels, shall show a second *white* light at least 3 feet below the first light, and at a horizontal distance of at least 5 feet away from it in the direction in which the outlying tackle is attached. 20 25

(b) Vessels and boats, except open boats, as defined in subdivision (a), when fishing with drift-nets, shall, so long as the nets are wholly or partially in the water, carry two *white* lights where they can best be seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet, and not more than 15 feet, and so that the horizontal distance between them, measured in a line with the keel, shall not be less than 5 feet and not more than 10 feet. The lower of these two lights shall be in the direction of the nets, and both of them shall be of such a character as to show all round the horizon, and to be visible from a distance of not less than 3 miles. 30 35

Within the Mediterranean sea sailing fishing vessels of less than 20 tons gross tonnage shall not be obliged to carry the lower of these two lights; should they, however, not carry it they shall show in the same position (in the direction of the net or gear) a *white* light, visible from a distance of not less than one nautical mile, on the approach of or to other vessels. 40

(c) Vessels and boats, except open boats as defined in subdivision (a), when line-fishing with their lines out and attached to or hauling



their lines, and, when not at anchor or stationary, shall carry the same lights as vessels fishing with drift-nets. When shooting lines, or fishing with towing lines, they shall carry the lights prescribed for a steam or sailing vessel under way respectively.

- 5 Within the Mediterranean sea sailing fishing vessels of 20 tons or more gross tonnage shall not be obliged to carry the lower of these two lights; should they, however, not carry it, they shall show, in the same position (in the direction of the lines) a *white* light visible from a distance of not less than one nautical mile on the approach of or to  
10 other vessels.

(d) In fog, mist, falling snow, or heavy rainstorms, drift-net vessels attached to their nets, and vessels when trawling, dredging, or fishing with any kind of drag-net, and vessels fishing with their lines out, shall, if of 20 tons gross tonnage or upwards, respectively, at intervals  
15 of not more than *one minute* make a blast; if steam vessels, with the whistle or siren, and if sailing vessels, with the fog-horn; each blast to be followed by ringing the bell.

Fishing vessels and boats of less than 20 tons gross tonnage shall not be obliged to give the above-mentioned signals; but if they do not  
20 they shall make some other efficient sound signal at intervals of not more than *one minute*.

**Foreign vessels of war.—Admission to French territorial waters and ports in time of peace.**—1. The term “vessel of war” is herein considered to apply to all vessels  
25 designated as such in the accepted meaning of this term, as well as to auxiliary vessels of every description.

2. For the purposes of the present regulations:—

The French littoral is divided into sections; the Mediterranean section (the only one included in this book) extends from the Spanish  
30 frontier to the Italian frontier (including Corsica).

3. In peace time foreign vessels of war are permanently authorised to visit French ports and those of protectorates, and to anchor in territorial waters, on condition that the number of such vessels flying the same flag does not exceed three per section.

35 In considering the number of vessels which can be admitted into a section at the same time, vessels already in that section will be taken into account.

The notification of a projected visit should, however, always be transmitted through the usual diplomatic channel so as to arrive, if  
40 circumstances permit, at least seven days before the date of the projected visit.

Foreign vessels of war may not stay more than 15 days in ports and territorial waters. They will be required to put to sea in 6 hours if

requested to do so by the naval authorities or by the Commandant d'Armes, even if the prescribed term of stay has not expired.

4. A special authorisation from the Government of the Republic, obtained through the usual diplomatic channel, is necessary both in order to prolong the duration of the visit and to exceed the number of vessels admitted specified in article 3. 5

5. The regulations given in articles 3 and 4 do not apply:—

(a) To vessels of war and vessels on board of which are embarked Heads of States, members of reigning dynasties or their suites, or diplomatic representatives accredited to the Government of the Republic. 10

(b) To vessels of war compelled to put into port by reason of damage sustained, bad weather or other unforeseen causes.

(c) To vessels engaged in the superintendence of fisheries, in accordance with the conventions relating to these fisheries. 15

6. In ports which are chief naval ports of arrondissements or the head-quarters of a Senior Naval Officer, the right of assigning anchorage berths to foreign vessels of war, or of directing them to shift berth, if necessary, is vested solely in the Prefet Maritime or Senior Naval Officer (Commandant de la Marine). 20

At all other ports this right is vested in the Captain of the Port.

7. Upon entering a port, foreign vessels of war will be boarded by a Naval Officer, sent by the Prefet Maritime or Senior Naval Officer, or by a Port official sent by the Captain of the Port, who will offer the Commanding Officer the courtesy of the port. 25

The Officer will acquaint the Commanding Officer with the anchoring berth that has been allotted to his vessel, and will obtain information as to the object and proposed duration of the visit, the name of the Commanding Officer, and the information it is usual to obtain upon such occasions. 30

Should the Officer sent to welcome the foreign vessel of war arrive on board after she has already anchored or made fast, the prescribed communication and enquiry will, nevertheless, be made and the confirmation of the anchoring berth taken or the assignation of another will also be carried out. 35

At anchorages where there is no Captain of the Port, if no French vessel of war is present, the foreign vessel of war will be boarded by a Customs official.

8. Foreign vessels of war calling at a port, or in territorial waters, are required to respect the fiscal laws and the laws and regulations regarding sanitation. 40

They are also required to adhere to all port regulations to which vessels of the French navy are subject.

With this object, the local Naval Authority will furnish the Com-

manding Officer with all necessary information concerning the port regulations.

Foreign vessels of war within territorial waters are forbidden to take bearings of the land or soundings, or to carry out, without permission, landing or firing exercises. (It has been ascertained by enquiry from the French Government that this is intended to prohibit action amounting to the making of surveys or examination by soundings; operations necessary for safe navigation are not prohibited.)

No submarine work, executed with or without divers, is to be undertaken without previous notice to the naval authorities.

Men belonging to ships' companies and troops must be unarmed when landed. Officers and petty officers (or N.C.O.'s) may carry the side arms which form part of their uniform.

The number of liberty men to be landed, the time of landing and return on board, will be fixed by arrangement with the local civil authorities and the Commandant d'Armes.

Boats moving in ports and territorial waters may not be armed.

The death sentence may not be carried out by any foreign vessel of war in territorial waters.

If a funeral is to take place on shore and the Commanding Officer desires an armed party to accompany the procession, he must obtain the permission of the Commandant d'Armes.

9. The regulations for the admission of belligerent foreign vessels of war are set forth in the decree of the 18th October, 1912, but remain subject to the formalities of notification or previous authorisation specified in articles 3 and 4 of the present decree, except in cases of *force majeure* provided for in paragraph (b) of article 5.

10. Should a foreign vessel of war fail to comply with the regulations set forth in this decree, the local Naval or Military authority will first call the attention of her Commanding Officer to the infringement committed and formally request him to observe the regulations.

Should this course fail, the qualified authority, Prefet Maritime, Senior Naval Officer, or Commandant d'Armes, may request the foreign vessel of war to leave the port or territorial waters immediately. (Decree of 21st May, 1913.)

**Approaching French territorial waters in time of war.**—1. In time of war, the visits of vessels, other than French vessels of war, to anchorages and ports on the French littoral or in French protectorates, are governed by the regulations given below.

2. No French merchant vessel, nor foreign vessel, either of war or merchant, may approach within 3 miles of the coast in French territorial waters without permission, without running the risk of being destroyed.

3. Between sunrise and sunset, every vessel affected by the present decree is to fly her national flag and number by International code

(if she has one) as soon as she approaches the forbidden zone. If desirous of entering the latter, a request is made by hoisting the pilot signal, the vessel remaining outside the zone until authorised to enter by semaphore, the signal station, or examination vessel.

The reply from a semaphore, or signal station, is made in the International code by the following signs:— 5

S. flag.—Entry permitted.

D. pendant.—Entry deferred.

Q. flag.—Entry forbidden.

If permission to enter is given, a vessel is to steam at reduced speed 10 in the forbidden zone, keeping the signal for a pilot flying.

If entry is deferred, a vessel is to manœuvre so as to clear the entrance to the channels and await the examination vessel, steaming towards the latter at reduced speed when seen.

If entry is forbidden a vessel is to abandon the idea of entering and 15 make for another anchorage.

The examination vessel is distinguished by three balls on the same halyard.

4. Between sunset and sunrise, every vessel affected by the present decree, is to fly her national flag and have navigation lights lit on 20 approaching the forbidden zone. If desirous of entering the latter, a request is made by burning one or more Bengal lights and blowing blasts on the whistle or siren, the vessel remaining outside the zone until permission to enter has been granted by an examination vessel.

The vessel, with her navigation lights showing, will await the examination vessel, and continue to burn Bengal lights to attract attention, 25 and if not warned, on sighting the examination vessel, may steam towards her at reduced speed.

The examination vessel is distinguished by three *red* lights superimposed. 30

A *red* Coston light exhibited from a station on shore signifies that entry is forbidden; a vessel must then give up the idea of entering, and make for another anchorage.

Between sunset and sunrise, every vessel affected by the present decree is in principle forbidden to request entry into the zones off the 35 naval bases of operations—Toulon is the only one within the limits of this book—the only cases in which Captains can request permission to enter are the following:—

Vessels authorised to do so by the Governor, either on their departure or whilst *en route*. 40

Vessels in danger, and absolutely incapable of remaining at sea until daybreak, or of reaching another anchorage.

5. In foggy weather every vessel affected by the present decree desirous of entering the forbidden zone, is to hoist the same signals

as in clear weather and blow blasts on the whistle or siren until permission to enter has been given by an examination vessel.

Entry into the naval bases of operations is forbidden in foggy weather under the conditions specified in article 4.

- 5 6. Every vessel affected by the present decree must immediately comply with the orders of a vessel of war or examination vessel, semaphore or signal station given by voice, International signal code, or by warning gun.

10 Every vessel warned by a battery or vessel of war, whatever her distance from shore may be, is to stop immediately. When stopped, a vessel may renew her request to enter, but must await, where she is, orders which will be notified.

15 If in spite of the warning given by the firing of a blank charge, a vessel does not stop at once, a premonitory shot will be fired two minutes later, and if after the expiration of a further two minutes interval, the vessel is still under way, effective fire will be opened upon her.

In cases of emergency the blank charge may be omitted.

20 At night the warning gun may also be omitted, and every vessel entering the forbidden zone without permission is liable to be destroyed without preliminary warning.

7. Vessels authorised to enter the roadsteads and ports of France and her protectorates are to take up the berths indicated by the local authority, and conform strictly to the regulations of every nature  
25 issued by that authority.

The length of stay of a vessel will depend on military considerations, and when circumstances require it a vessel may be ordered to put to sea or to move to a determined point; such order must be carried out without delay, though respite may be allowed to vessels really  
30 unable to conform to it immediately.

No vessel is to get under way, either to shift berth or to quit the roads, without the permission of the local authority; a request may be made by signal, S. flag.

8. In naval roads and ports, between sunset and sunrise, the movement of boats, other than those of vessels of war, is absolutely for-  
35 bidden.

From sunrise to sunset, movement is only allowed to boats which have received a special permit from the naval authorities and the means of making themselves recognisable.

40 Boats with permits should steer clear of vessels of war if ordered to do so, and cannot in any case go alongside the latter without their permission. The movement of these boats will moreover remain subject to local regulations, notably those relative to the prohibition to enter certain parts of the roadstead, and to go alongside at any  
45 other place than those expressly notified.

In commercial ports similar measures will be taken by the local authority to impose the restrictions judged necessary on the movement of boats, due consideration being given to the interests of commerce.

9. Visits by neutral vessels of war are governed by the decree of 21st May, 1913, so far as notification or previous authorisation is concerned, the regulations for entry being governed by the present decree. 5

10. The measures provided for by the present decree are to come into force on mobilisation or on special notice. 10

11. Any infraction of the present decree will lead to such repressive measures as circumstances admit of, in addition to the risks of destruction incurred.

12. Regulations contrary to the present decree are cancelled.

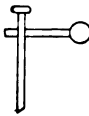

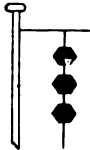

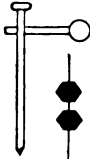

13. The Minister of Marine is charged with the execution of the present decree, dated 26th May, 1913. 15

**French ports.—Signals prohibiting entry.**—A uniform system of three signals has been established to indicate when vessels are prohibited from entering or leaving French ports.



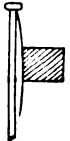

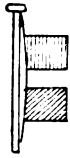

Supplementary signals, applicable to the special circumstances of each port, will continue to be made. 20

The three signals will be made, according to the installation provided at the port, by means of either series of signals A. or B., shown below.

#### SERIES A.

DAY.	NIGHT.		DAY.	NIGHT.
		Entrance prohibited.	Horizontal arm with a disc at the end generally pointing towards the fairway.	Three red lights vertical.
		Vessels prohibited from leaving the port.	Three hexagonal shapes placed vertically.	Three green lights vertical.
		Vessels prohibited from either entering or leaving the port.	Horizontal arm with a disc at the end generally pointing towards the fairway and two hexagonal shapes placed vertically.	Three lights placed vertically, a green between two red.

## SERIES B.

DAY.	NIGHT.		DAY.	NIGHT.
		Entrance prohibited.	A red flag.	A red light.
		Vessels prohibited from leaving the port.	A green flag.	A green light.
		Vessels prohibited from either entering or leaving the port.	A red flag above a green flag.	A red light above a green light.

**French ports.—Temporary closing.**—Access to French ports may be prohibited, or subjected to certain regulations, on account of naval manœuvres, exercises, or other causes.

1. A warning signal will be made from a conspicuous position:—  
5 by day, three balls vertical; by night, three *red* lights vertical.

2. The same signals will be shown by the watch vessels.

3. All vessels wishing to enter or leave French waters when one of the foregoing signals is flying:—by day, hoist the pilot flag and wait the arrival of a watch vessel; at night, burn one or many Bengal lights,  
10 also blow a steam whistle, or sound a siren, and wait the arrival of a watch vessel.

4. On a hail, or a shot fired, from the watch vessel, all vessels must immediately stop or heave to.

5. Vessels will, the occasions arising, submit to a visit from the  
15 watch vessel, which will give the following information:—

(a) If a special examination service is established, and in what place it is to be found.

(b) If the entry to the port is closed, and for how long.

(c) If there are any special directions for navigating certain parts.

20 6. Vessels leaving the port, the necessary instructions will be given, or the examination made, in the port by the Naval authorities.

7. Masters of vessels not complying with these regulations do so at their risk and peril, and are liable for any damage they may cause.

**French submarines.—Regulations and signals.—**

25 I. General regulations.—1. When meeting other vessels, and, except

in the case hereafter mentioned (when flying diving flag), submarines navigating on the surface must conform to the usual Rule of the road.

When, on the contrary, submarines are navigating submerged, all other vessels should give them a wide berth. 5

2. The presence of submarines submerged is indicated by a square flag, divided horizontally into two equal parts, the upper red and the lower yellow, hoisted at any signal station, lighthouse, fort, &c., in sight of which the submarines are manœuvring, or by a vessel, torpedo boat, or tug accompanying them. 10

3. When a vessel is navigating in a neighbourhood where submarines are signalled submerged, the master must station special lookouts to watch the surface of the sea and report all floating objects.

The periscopes (optical tubes of submerged submarines) are distinguished from other objects usually met with, in that they appear 15 like a round post standing vertically out of the water.

4. Although submerged submarines may be met in all French waters, masters of vessels should be particularly on the lookout for them when near Toulon and Ajaccio, where submarine flotillas are stationed. 20

5. In order to give every convenience to vessels making or leaving the ports frequented by submarines, zones have been fixed which are forbidden to submerged submarines. Masters frequenting these ports are strongly advised to navigate in these zones.

#### II.—Regulations and signals relative to submerged submarines:— 25

1. The signal stations hoist the red and yellow flag, as above described, to warn vessels near the coast that submarines are submerged in the neighbourhood.

2. Every vessel convoying a submarine carries, as distinctive signal, the aforesaid flag forward and a white ball aft in place of the national 30 ensign.

Every vessel observing these distinctive signals should steer to pass at least half a mile astern of the convoying vessel.

3. During submerged exercises, the submarines carry the red and yellow flag forward, and the national ensign aft. 35

Every vessel observing these signals should give a wide berth to the submarine, which, even should she be momentarily on the surface, is considered as exempt from the Rule of the road.

#### III.—Regulations relative to firing torpedoes from submerged submarines:— 40

1. The target vessels or vessels towing a target for submerged submarine torpedo practice, carry during the firing exercises, besides the ordinary red firing flag, a large red and yellow flag, as above described.



2. Vessels should give the route of the target a wide berth, passing at least half a mile from it.

3. When the target or towing vessel sees a vessel standing on a course dangerous to the submarine, she may hoist International code signal M N (Stop immediately) and fire a gun if necessary.

The vessel signalled should immediately obey this signal.

The signal M H of the same code intimates that she may continue her course.

The vessels convoying submarines may also, in case of urgency, make use of these signals.

4. When possible the target vessel is accompanied by a swift despatch boat, ready to convey to vessels in sight any order, by voice or by aid of a black board.

IV.—Regulations and signals relating to the protection of submarines at moorings:—

1. All vessels and boats are forbidden to go alongside submarines anchored or moored in ports or roadsteads, without a special permit.

2. By night, submarines anchored or moored in ports or roadsteads carry, in addition to the ordinary anchor lights, three lights vertical (two *red* above one *white*) and 6 feet apart.

**Signals to be made by vessels inconvenienced by searchlights of defended ports or of French vessels of war.**—Every vessel seriously inconvenienced by searchlights which are being exercised at defended ports or by French vessels of war, should make use either separately, or as far as possible at the same time, of the following signals:—

(a) By flashing lamp, *four short flashes* followed by *one long flash*.

(b) By whistle, siren, or fog-horn, *four short blasts* followed by *one long blast*.

These signals should not be used without real necessity, and only when the vessel finds herself actually in the rays of a searchlight, when only can it be seen which searchlight is inconveniencing her, and which will then be doused or its direction altered.

The signals should be repeated until the searchlight has been doused or its direction altered.

Vessels failing to use these signals will be held responsible for accidents that may occur.

**ITALIAN PORTS.—Vessels of war.—Regulations in time of peace.**—The following regulations for foreign vessels of war anchoring in Italian ports have been issued by the Italian Government:—

1. Foreign vessels of war cannot remain at fortified ports for a period of more than eight days, and not more than three vessels of the

same flag may assemble at these anchorages, unless formal permission, which must be applied for through a diplomatic channel, has been received.

2. The fortified ports within the limits of this book are given on page 34.

5

The following ports are to be saluted by vessels of war: Genoa, Spezia (at the anchorage within the gulf), Gaeta (at the anchorage), Taranto (Mar Grande and Mar Piccolo); also Naples (at the anchorage), and any state anchorage where there is a Royal vessel of war capable of returning the same.

10

3. Foreign vessels of war anchored in any of the above-mentioned places must leave at any time if requested, and at the expiration of the period stated in Article 1.

4. The Naval Authorities will probably send an Officer to point out the anchorage assigned to the vessel, but in the event of this not being done anchorage may be taken up as convenient.

15

5. Should pratique be refused, the Medical Officer of the vessel should be sent to the Local Sanitary Office to ascertain the treatment to which the vessel or vessels is to be subjected, and all Port Regulations must be carried out.

20

6. No surveying or hydrographic operations are to be carried on without special permission from the Government, and the following are also forbidden within the territorial waters: (a) The execution of a death sentence. (b) Vessels carrying on hostilities with each other, or bringing prizes or searching vessels. (c) Landing to execute manœuvres on, or gun practice within gun range from the coasts, without special permission.

25

7. With the exception of Officers and petty officers the crew of a foreign vessel must always land unarmed, and should it be wished to send an armed funeral party, permission must be obtained.

30

**Vessels approaching fortified ports in time of war.**  
—**Regulations.**—The following regulations have been issued by the Italian Government:—

1. The military commander of a fortified port in time of war may, if circumstances so require, order all foreign vessels of war, as well as foreign and Italian merchant vessels, anchored within the fortified zone, to proceed to sea or move elsewhere, leaving the waters adjacent to the port clear for a distance of 10 miles. Vessels receiving such directions are bound to move within a maximum period of 12 hours from the time the order is delivered on board. The military commander will provide tugs for such vessels as are not in a state to go to sea within the limits of time specified, and will conduct them to

35

40

some other place, according to the exigencies of the port. In the event of a refusal to leave the port the military commander may have recourse to such means as the necessities and urgency of the case may require.

5        2. Any vessel which approaches during the day any fortified port in time of war, either for the purpose of approaching it or because her track leads within the 10-mile limit, is to take steps to ensure her recognition, and is not to proceed towards the anchorage within the  
10        fortified port without having previously received the permission of the military commander through one of the semaphore stations included in the list given in Article 10.

3. To obtain permission to enter, vessels must first be completely recognised; then they may proceed towards the space comprised within the limits specified in the list given in Article 10, but must stop  
15        when in sight of the defence works, and keep the national flag, the ship's name in the International code, the pilot signal, and the International code signal P.D., "I request permission to enter," flying in a high position. Permission may also be asked by wireless, but this does not relieve a vessel of the necessity of stopping on arriving  
20        at the limits hereinafter described; and waiting for a reply.

4. The military commander will decide whether or not permission to enter is to be given to vessels which have complied with the foregoing article, and is to take into consideration that the presence of such vessel within the port is not to be allowed to subsequently interfere with or obstruct its means of defence.  
25       

5. The semaphore station, which shall have received, by means of wireless or other signals, the request to enter, will give immediate notice to the military commander, notifying him of such information as the officer in charge of the station may deem useful, such as the  
30        name of the vessel, nationality, distance, bearing, &c.

If the military commander does not consider it convenient for authorisation of entry to be given, he will cause the signal U.S.X. to be made: "Sorry I am unable to comply with your request."

The above reply may also be sent by wireless if the request has  
35        been made in a similar way.

If permission is given a pilot will be sent. An official will also be sent in the case of neutral vessels of war or suspected vessels, such official being specially charged with the duty of recognising the vessel by inspection and boarding her. In such cases the inspecting officer  
40        is given authority to give or refuse leave to enter, according to the result of his visit. If the foregoing visit cannot be made on account of the state of the sea, right of entry will be refused to neutral vessels of war or to foreign or Italian merchant vessels, unless they are in

obvious danger. Under the authorisation of the military commander a special system of signals will be drawn up, whereby the inspecting officer or the pilot may send through the semaphore station such information as may be useful or urgent. One of these signals is that the vessel has been subjected to a visit, and another that the pilot has gone aboard, but the signal indicating that a vessel has received permission to enter and proceed to her anchorage, which signal varies from day to day, will be hoisted without fail in a high position, from which it is visible to semaphore stations and defence vessels. 5

6. At night all entry into maritime ports is absolutely forbidden. 10  
Permission is only granted to Italian vessels of war and to vessels of an allied power under the following circumstances:—

(a) Pursuit.

(b) Grave damage to the hull or vital parts.

(c) Stress of weather. 15

7. At night, the movements of all boats of foreign vessels of war, or of Italian or foreign merchant vessels which happen to be within a maritime port in time of war, are absolutely forbidden, and they are not to communicate with the shore without previous permission from the military commander. In cases of urgency, when a vessel is under the necessity of communicating with the shore without having the necessary permission from the military commander, the means to do so may be provided on the conventional signal of requesting permission to do so being made. 20

Any other form of signalling is prohibited. 25

The afore-mentioned vessels may communicate with the shore during daylight by their boats, but these must follow the most direct track from their vessels to the landing place they may have been instructed to use in such cases.

8. In the event of vessels contravening the foregoing regulations, the requisite signals from the semaphore stations will be hoisted and a blank charge will be fired from one of the batteries charged with such duties. In any case where such warning may prove ineffective, five minutes after the blank charge a projectile will be fired about half a cable ahead of the vessel. Then, if the vessel still shows reluctance to obey the regulations, she will be fired upon and all means taken to ensure her obedience. In urgent cases the firing of the blank charge may be omitted. 30 35

9. For the purposes of the examination service the change of night into day, and vice versâ, is fixed in all places at sunrise and sunset. 40

10. The following is a list of fortified ports and other places, within the limits of this volume, which must not be approached without permission in time of war, as well as of their coastal boundaries,

anchorages, and semaphore stations to which the request for permission to approach must be made.

Locality.	Coastal limits.	Anchorage.	Semaphore stations with which vessels must communicate.
Vado -	From the mouth of Torrente Corallo (at Spotorno) to the mouth of Torrente Sansobbia.	{ Spotorno - - - Vado - - - Savona - - - }	Capo di Noli.
Spezia -	From the mouth of Torrente Deiva to the mouth of Fiume Frigido.	{ Levante, Monterosso Porto Venere - Spezia, Lerici - Bocche di Magra - Marina di Carrara - }	Isola Palmaria.
Monte Argentario	From the mouth of Fiume Ombrone to the mouth of the Chiarone.	{ Talamone - - - Porto Santo Stefano - Porto Ercole - - }	Torre di Cala Grande (Ronconali).
Gaeta -	From Torre Capovento to Torre Giano.	{ Gaeta - - - Formia - - - }	Torre Orlando.
Messina -	From the mouth of Valone della Covaja to the mouth of Fiume Vellanidi (Calabria).	{ Reggio - - - Villa San Giovanni - }	Capo dell'Armi.
Taranto -	From the mouth of the Paterniscolo to the entrance to Ostone waterway.	{ Taranto - - - Mar Grande - - - Mar Piccolo - - }	Capo San Vito.

**Italian lighthouses.**—Signals for assistance are made as undermentioned from the following lighthouses: Isola Santa Maria; Banchi della Meloria, south end, and light-vessel at north end; Isola Palmajola; Formica Maggiore, Formiche di Grosseto; Isola Giannutri; Capo Nero, Isola di Zannone; Capo Colonne (by day only); and Isola di Sant' Andrea, Gallipoli.

A square black flag with a white disc in the middle, by day, or a *white* Coston light at night, signifies that a doctor is needed. A pendant with four chequers, two white and two black, by day, or a *red* and *white* Coston light at night, signifies that the apparatus is damaged. A black ball by day, or a *red* Coston light at night, signifies that provisions and water are required. A square black flag with a white disc in the middle over a black ball by day, or a *white* and *red* Coston light at night, signifies shipwreck.

The light-vessel at night uses a Very light instead of the Coston, and substitutes a *yellow* light for the *white* light.

**TUNNY FISHERIES.**—During certain seasons of the year fishing nets of large size (madragues or tonnara) are moored on the

coasts of France and Italy for the purpose of catching tunny fish. These nets, which are sometimes upwards of a mile off-shore, should be avoided; in most cases the nets are marked by buoys or boats, carrying a lantern light at night.

The nets off the Italian coast are laid out between March and November, inclusive, approximately, according to the exigencies of the station; their positions are subject to alteration. 5

The territorial limits in the Strait of Bonifacio, in which the right of fishing is exclusively reserved to the French on the Corsican, and the Italians on the Sardinian, side, are marked by a line through a beacon, 26 feet high, on Guardia del Turco, the northern summit of Isola della Maddalena, and a beacon, 33 feet high, on the rocks at the southern point of Isola Budelli; and by a line through a beacon, 33 feet high, on a rock 550 yards in front of Contra di li Scale, at the northern end of Sardinia, and a beacon 39 feet high, on the coast near Punta Marmorata. 10 15

The beacons are white masonry pillars.

A zone of 330 yards on both sides of the limiting lines is open to both nations' fishermen.

The nets and method of fishing are described in *Mediterranean Pilot*, Vol. I. 20

**Marks for tunny nets.—Italy.**—The nets of tunny fisheries on the coasts of Italy are marked as follows:—

1. Tunny fisheries proper:—

- (a) The point at which the nets are attached to the shore is marked by a mast not less than 33 feet in height, surmounted by a disc 6 feet in diameter, painted in concentric white and black bands, and exhibiting at night two *white fixed* lights, 6 feet apart, and visible from a distance of 2 miles. 25 30
- (b) The outer left-hand extremity of the nets as seen by an observer situated at the point at which the nets are attached to the shore, is marked by a buoy, boat, or floating mark, with a spar 16 feet in height, surmounted by day by two black balls placed vertically, 6 feet apart, and at night by two lights placed vertically, 6 feet apart, the upper *green*, the lower *white*, visible from a distance of 2 miles. 35
- (c) The outer right-hand extremity of the nets, as seen by an observer placed as in (b), is marked by day in a manner identical with the above (a boat or float with a spar surmounted by two balls), and at night by two lights placed vertically, 6 feet apart, the upper *red*, the lower *white*, visible from a distance of 2 miles. 40

The above-mentioned marks are on the outermost limit of the tunny nets, or placed outside it should the lights be a hindrance or obstacle to the fishing.

2. Smaller tunny fisheries:—

- 5 (a) The point where the nets are attached to the shore is marked as above.
- (b) The outer end of the nets is marked by day by a buoy, boat, or other floating mark with a spar 16 feet in height, surmounted by two discs placed vertically, 6 feet apart, and at night by two lights placed vertically, 6 feet apart, the upper *red*, the lower *white*, visible from a distance of 2 miles.
- 10

3. Tunny fishery nets laid out in an anchorage:—

- In addition to the foregoing every anchor for nets is marked by a buoy or other conspicuous mark.
- 15

**Submarine cables.**—On the coasts of Italy the landing place and first direction of submarine cables are marked by two beacons in line; as a rule the beacons are posts, each surmounted by a framework painted white; one has the letter **T** painted on it in black. There is also a board where each cable is landed, with notice that anchorage is prohibited near the cable.

20

*Telegraph chart 3778.*

**Telegraph.**—Telegraphic communication is universal from all ports and islands described in this book. Nearly all the semaphore stations on the coasts of France and Italy can transmit by telegraph, signals made by the International code.

25

**Lloyd's signal stations** are established at Ile Pomègues, Marseille; Cap Corse and Cap Pertusato, Corsica; Capo Testa, Strait of Bonifacio; Forte Spuria and Capo dell' Armi, Strait of Messina.

**Wireless telegraph stations** are established at Port Vendres; Les Saintes Maries; Toulon Naval school; Ile de Porquerolles, Iles d'Hyères; Cros de Cagnes, near Nice; Ajaccio, Corsica; Genoa; and Naples.

30

Weather forecasts will be given; telegrams from the stations are distinguished by the letters **M.M.**

35

A vessel in distress should make the signal **S.O.S.**, repeated at intervals of a few seconds, and on a reply being received the signal **S.O.S.** should be repeated, after which the position of the vessel, the nature of the damage and of the assistance required should be given.

Wireless telegraph stations are only shown on general ocean and telegraph charts.

40

**COAL.**—The principal coaling stations in the area described in this book are Cette, Marseille, Nice, Savona, Genoa, Spezia, Leghorn, Naples, and Salerno.

**DOCK ACCOMMODATION.**—There are dry docks at Marseille, La Ciotat, Villefranche, Genoa, Leghorn, and Naples. 5  
Patent slips at Ajaccio and Leghorn. Government dry docks at Toulon, Genoa, Spezia, Naples, and Taranto. *See Appendix I.*

**Naval dockyards and establishments** exist at Toulon, Genoa, Spezia, Naples, Castellamare, and Taranto.

**Lifeboats** and life-saving stations are inserted on plans of har- 10  
bours and anchorages, and not on other charts.

**Standard time.**—The standard time in France is mean time of the meridian of Greenwich.

The standard time in Italy is mean time of the meridian of 15° longitude east of Greenwich, or one hour fast of Greenwich mean 15  
time. In Italy the time is reckoned from 0h. to 24h., commencing at midnight.

**Currency.**—The French monetary unit is the franc of 100 centimes, the value of which is about 9½d. in English currency; there are French gold coins of 10 and 20 francs, and silver coins of one, 2, 20  
5 francs, 20 and 50 centimes. The Italian monetary unit is the lira of 100 centesimi, which is of the same value as the franc; there are Italian gold coins of 5, 10, 20, and 50 lire, and silver coins of one, 2, 5 lire, and 50 centesimi.

**Weights and measures.**—The metric system of weights and 25  
measures is used both in France and Italy.

**Consular stations.**—British Consuls, Vice-Consuls, or Consular Agents are stationed at the following ports: Cette, Marseille, Toulon, Hyères, Cannes, Nice, Monaco, and Mentone in France; Ajaccio and Bastia in Corsica; Bordighera, San Remo, Savona, Genoa, 30  
Spezia, Leghorn, Piombino and Isola d'Elba, Civita Vecchia, Naples, Castellamare, Capri, Salerno, and Reggio, in Italy.

*Chart 2158a, Mediterranean sea, western sheet.*

**PASSAGES.**—Chapter I. of Mediterranean Pilot, Vol. I., contains general directions for making passages between ports situated 35  
in the Gulfs of Lyons and Genoa, and the west coast of Italy, and also through the great channels of Sardinia, Sicily, and Malta, which lead into the eastern basin of the Mediterranean. These directions are not repeated in this volume, and the following remarks are only supplementary to them. 40

*General chart 449.*



*Chart 2158a, Mediterranean sea, western sheet.*

Steam vessels proceeding between ports in the Gulf of Lyons and the Levant take the direct route through the Straits of Bonifacio and Messina.

- 5 Sailing vessels during summer, when calms and light winds often prevail eastward of Corsica and in the Strait of Messina, pass preferably westward and southward of Sardinia, particularly if on leaving the French coast a north-westerly wind is blowing. If on reaching the Sardinia channel the wind is easterly, work to windward on the coast  
10 of Africa, where the sea is smoother than on the coast of Sardinia, in the general easterly current, but in winter work to windward from the coast of Sardinia, as directed in Mediterranean Pilot, Vol. I. Sailing vessels from the west coast of Italy to the Levant pass through the Strait of Messina.

- 15 Sailing vessels from the south-westward, or the Gulf of Lyons, bound to the Gulf of Genoa, should at all seasons make Îles d'Hyères, and then keep along the coast to Capo delle Mele at a distance depending on the weather; if bound to Leghorn from Îles d'Hyères steer to, and make, Isola Gorgona, and if bound to ports southward of Leghorn pass  
20 a short distance northward of Cap Corse, and north or south of Isola d'Elba, according to destination. If on arriving at the entrance to the Gulf of Genoa a north-easterly gale should be blowing, wait under the land westward of Capo delle Mele until it moderates, the gales in the gulf not being of long duration; if caught by a gale in the gulf run  
25 and obtain shelter under Isola d'Elba.

In winter, with strong easterly or westerly winds, give Cap Corse a wide berth, as violent squalls and whirlwinds come off the cape and are felt from 6 to 8 miles seawards.

- 30 Sailing vessels bound to the Gulf of Lyons from the eastward should, especially in winter, with fresh westerly winds, pass through the Strait of Messina, and northward of Corsica.

*General chart 449.*

## CHAPTER II.

## THE SOUTH COAST OF FRANCE.

CAP CERBÈRE TO RIVIÈRE SAINT LOUIS (THE ITALIAN FRONTIER).

*Lat. 42° 26' N., Long. 3° 11' E. to Lat. 43° 47' N., Long. 7° 32' E.*  
 VARIATION IN 1917.—Decreasing seven and a half minutes annually

*Chart 1780, Gulfs of Lyons and Genoa. Var. 11° 30' W.*

**GULF OF LYONS** (Golfe du Lion), the entrance to which is between Cabo Creus (*Lat. 42° 19' N., Long. 3° 19' E.*) and Les îles Hyères, about 134 miles east-north-eastward, extends north-north-westward about 60 miles; situated between the Pyrenees and Alpes, it is notorious for bad weather, sudden and violent gales, and a heavy confused sea. In the fine season, when westerly or easterly gales do not last long, navigation in the gulf presents no great difficulty, but it is otherwise in winter, when the gales are violent, of long duration, and shift suddenly. 5  
10

It is particularly important for sailing vessels not to be embayed in the gulf with strong easterly winds, but should a vessel be caught by them she should get into a position whence a harbour of refuge could be reached.

The ports which are available for this purpose, according to the position of the vessel, are: Rosas bay, to the south of Cabo Creus; Port Selva, to the west of Cabo Creus (*see Mediterranean Pilot, Vol. I.*); Port Vendres; Port de Cette; Golfe d'Aigues Mortes; Anse de Repos, in the Golfe de Foz; and Baie de l'Estaque. 15

In proceeding to one of these ports, if the weather should be thick, especially after easterly winds, the westerly current must be allowed for, and the lead must be constantly used. 20

In proceeding from the south-westward into the gulf, pass near Cabo Creus, so as to be able to put into Rosas bay if there are signs of easterly winds. 25

If bound to Marseille, with north-westerly winds and fine weather, make the land well to windward; should the wind freshen and prevent

*General charts 2158a, 449.*

*Chart 1780, Gulfs of Lyons and Genoa. Var. 11° 30' W.*

the vessel reaching her port, she might attain Rade des Hyères. The weather, with south-westerly winds in winter, is rarely fine; a vessel entering the gulf will continue northward if the wind veers to  
 5 the westward, so as to make the land well to windward of her port should it veer to the north-westward. If the wind backs to the southward, south-easterly winds may be expected, in which case sufficient easting should be made to keep to windward of the port.

**Depths.**—In the west part of the Gulf of Lyons the 25-fathom  
 10 line passes less than a mile off Cap Cerbère and Cap Béar; then it continues nearly parallel to the coast at distances of less than 8 miles, and approaches Cap Couronne to less than one mile. South-eastward of Cap Couronne the water is deeper, the 100-fathom line being from about 2 to 15 miles off-shore.

**Caution.**—In approaching the northern shore of the Gulf of Lyons with southerly winds the greatest precaution is necessary, as the current then at times sets strongly northward and north-westward. From Cap d'Agde to near Cap Couronne, eastward of the delta of the Rhône, the land is low and marshy, and difficult to be seen at  
 20 night or in foggy weather; attention must therefore be given to the vessel's position, and the lead constantly used.

*Chart 1804, Cape St. Sebastian to Cette.*

**CAP CERBÈRE** (*Lat. 42° 26' N., Long. 3° 11' E.*) is the eastern termination of a range of mountains. The cape is steep cliffs  
 25 rising abruptly to a tableland. View on plan 1506.

**Anse Cerbère**, on the north side of the cape, extends half a mile south-westward, and affords shelter to small vessels from southerly and westerly winds; a small village is situated on the shore at its head, and good water can be obtained from a rivulet which flows into  
 30 the bay near it. There is a large Custom-house barrack southward of the village.

**Light.**—A light is exhibited, at 62 feet above high water, from the summit of a scaffold surmounting a watch-house, 18 feet high, on the north shore of the bay.

**Life-saving station.**—A rocket apparatus is stationed at Cerbère Custom house.  
 35

**Cap Canadell** is about 4 cables northward of Anse Cerbère lighthouse, and off it are Rochers Canadell, two islets about 6 feet high, and a rock; the narrow passage between them and the cape is not  
 40 navigable.

Anse de Terrambou, northward of Cap Canadell, is small, but affords anchorage for small vessels with off-shore winds.

*General charts 1780, 2158a, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 30' W.*

**Anse Peyrefite**, northward of Anse Terrambou, from which it is separated by a point, is small, but affords shelter for small vessels with off-shore winds; Cap Rederis, its northern point, is high steep cliffs. Basse Rederis,  $1\frac{1}{2}$  cables north-eastward of the cape, has 5 feet 5 water, and there is a depth of  $6\frac{1}{2}$  fathoms in the passage inside it.

**The coast** between Cap Rederis and Cap l'Abeille, about 8 cables north-north-westward, is high, rugged, and skirted by rocks.

**Cap l'Abeille** is moderately high, with three rocks close off it. A shoal with  $2\frac{3}{4}$  fathoms water, and 6 fathoms between it and the 10 shore, lies  $1\frac{1}{2}$  cables eastward of the cape.

**Baie de Banyuls.**—The coast from Cap l'Abeille trends west-north-westward rather more than a mile, and then turns northward nearly  $1\frac{1}{2}$  miles to Cap Oullestreil (*Lat. 42° 30' N., Long. 3° 8' E.*), forming a bight at the head of which are the bay and small town of 15 Banyuls. A railway bridge, with three arches; Hermitage de la Sallette, on a hill about a mile inland; and the ruins of a mill on Cap Dosne, on the northern side of Baie de Banyuls entrance, are conspicuous. There is anchorage, with off-shore winds, in the bight in 20 from 7 to 10 fathoms, sand; small coasting vessels shelter at the head of the bay, between Ile Grosse or Fontaulé, a rock, 23 feet high, joined to the coast by a mole, and Ile Petite, a rock, 10 feet high; a patch with  $2\frac{3}{4}$  fathoms water lies about a cable off Cap Dosne. There is a landing pier, 26 yards long, at the town.

**Light.**—A light is exhibited, at 55 feet above high water, from a 25 white wooden tower on Cap Dosne.

**Life-saving station.**—A rocket apparatus is stationed at Banyuls Custom house.

**Water** can be obtained from Rivière 'Baclaury, a stream which flows into the bay, or from the wells in the town. 30

**Cap Oullestreil.**—Cap Castell is nearly 3 cables northward of Cap Dosne, a small bight lying between. The coast from Cap Castell trends northward about 6 cables to Cap Oullestreil, and is arid cliffs, skirted by detached rocks.

**Anse de Paulilles**, between Cap Oullestreil and Cap Béar, one 35 mile north-north-eastward, extends westward about half a mile; it has depths of from 3 to 6 fathoms, and is frequented by small vessels when unable to enter Port Vendres during strong north-westerly winds.

A spit extends about  $1\frac{1}{2}$  cables north-eastward from Cap Oullestreil 40 and Basse la Lioze, with  $2\frac{3}{4}$  fathoms, rock, lies in the middle of the bay.

*General charts 1780, 2158a, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 40' W.*

There are two small beaches at the head of the bay, on one of which is a dynamite factory, with an iron structure, 8 feet high, extending into 21 feet water.

- 5 **Anchorage.**—Small vessels anchor northward of Basse la Lioze, but violent squalls come off the land, and the anchorage should not be used without necessity.

**CAP BÉAR** is a vertical cliff about 30 feet high, from which the land is rugged to its summit, about 185 feet high, a quarter of a mile westward. About  $3\frac{1}{4}$  miles south-westward of the cape is the Tour Madeloc or du Diable, on the peak of an arid mountain, 2,146 feet high. Mont Canigou, about 30 miles westward of Cap Béar, is 9,138 feet high, and the summit is covered with snow. Views on chart 1804.

- 15 **LIGHT.**—A light is exhibited, at 259 feet above high water, from a square red and grey stone tower, 74 feet high (*Lat. 42° 31' N., Long. 3° 8' W.*), situated about a quarter of a mile westward of Cap Béar.

- 20 **Signal station.**—A semaphore station, a white house and tower, with a black mast, is situated close eastward of the lighthouse.

**The coast** from Cap Béar trends west-north-westward  $1\frac{1}{4}$  miles to the entrance to Port Vendres; it is rugged and rocky, and about  $1\frac{1}{2}$  cables north-north-westward of the lighthouse is a rock, with  $1\frac{1}{2}$  fathoms water, and a deep passage inside.

- 25 *Plan 1506, Port and roadstead of Port Vendres.*

**PORT VENDRES** (ancient Portus Veneris) is small, but affords good shelter. View on plan 1506. It extends about half a mile westward and south-westward; Avant port is a cable wide and protected by a mole, which projects  $1\frac{1}{2}$  cables north-westward from the east entrance point inside the rocks off it; the holding ground is bad. On Pointe du Fanal, the west entrance point, is a fort, and there are other forts on the south shore westward of the mole. Bassin de l'Obelisque, or Port Vieux, is the northern part of the inner portion of the port, and is about 430 feet long and 330 feet wide. Bassin de Castellane, or Port Neuf, southward of Port Vieux, is about 1,060 feet long, 456 feet wide, and landlocked. There are mooring posts along the shore. The heads of the rocks at Pointe de la Presqu'île, the south-eastern entrance point of Port Neuf, and that part of the wall appearing above them, are painted black.

- 40 **Depths.**—There are depths of from 65 to 52 feet in the entrance; of from 59 to 30 feet in Avant port; of from 8 to 30 feet in Port Vieux; and of from 25 to 29 feet in Port Neuf.

*General charts 1804, 1780, 2158a, 449.*

*Plan 1506, Port and roadstead of Port Vendres. Var. 11° 40' W.*

**LIGHTS.**—A light is exhibited, at 98 feet above high water, from a square white tower, 65 feet high, in Redoute du Fanal (*Lat. 42° 31' N., Long. 3° 7' E.*), on the west side of the entrance to Port Vendres.

A light is exhibited, at 67 feet above high water, from a white iron framework with grey mouldings, 59 feet high, on the end of the mole on the east side of the entrance.



Redoute du Fanal lighthouse.

**Leading lights.**—Front.—A light is exhibited, from a white iron support, surmounting a shed 17 feet high, on the point under and north-westward of Redoute Béar, on the southern shore of the port.

Rear.—A light is exhibited from a white house, 25 feet high, situated 216 yards, 204° true, from the front light.

**Buoys.**—A red buoy, surmounted by a triangle, lies nearly half a cable eastward of the lighthouse on Pointe du Fanal; a similar buoy lies close off Pointe des Pilotes, 1½ cables south-westward; and a black buoy, surmounted by a cylinder, lies close off the north-west extreme of Pointe de la Presqu'île.

**Pilots.**—There are six pilots, and, weather permitting, vessels are boarded by a pilot by day and at night. The station is at Pointe des Pilotes. The pilotage charge, including both entering and leaving, for sailing vessels over 100 tons is 25 cents per ton; there is a special charge for vessels of war; vessels which take a pilot less than 300 yards outside a line from the end of the breakwater to the north extreme of the Batterie de la Mauresque pay half the charge.

**Outer anchorage.**—There is temporary anchorage during fine weather about half a mile northward of the port, or northward of a line with Clocher de Collioure bearing 270° true, in about 20 fathoms; the holding ground is bad eastward of a line through Pointe du Fanal lighthouse and Tour Madeloc, and westward of a line through the same lighthouse and the rear leading lighthouse. At night anchor with the two leading lights in line 204° true, and Cap Béar light about 158° true.

**Directions.**—The light-tower and semaphore on Cap Béar; Tour Madeloc, on the peak of a mountain, 2,146 feet high, 3¼ miles south-westward of the cape; Fort Saint Elme, half a mile westward of Port Neuf; and Redoute du Fanal are conspicuous.

Round the end of the breakwater at a distance of about 100 yards, and thence keep in mid-channel; anchor as convenient. At night, the leading lights on the south side of the harbour in line bearing 204°

*General charts 1804, 1780, 2158a, 449.*

*Plan 1506, Port and roadstead of Port Vendres. Var. 11° 46' W.*

true, lead about 30 yards westward of the end of the breakwater (Lat. 42° 31' N., Long. 3° 7' E.), and into the middle of the entrance.

**Quarantine anchorage.**—Vessels in quarantine moor eastward of Redoute de la Presqu'île on the southern shore. When north-westerly winds are strong it is necessary for vessels here to moor with two anchors ahead and hawsers from the stern to mooring posts at the foot of the ramparts.

**The town** is situated on the north-western and western shores of the port.

**Wireless telegraph.**—A naval training wireless telegraph station at Port Vendres is open in case of distress; the call letters are F.U.V.

**Trade.**—The trade of Port Vendres is small, but from its position on the frontier, with good railway communication, and from there being no port northward to Cette, it is important as a harbour of refuge.

**Supplies.**—Water can be obtained from fountains, and provisions of all kinds from Collioure.

**Coal.**—From 3,000 to 4,000 tons of coal are imported annually, and about 350 tons are usually in stock.

**Communication.**—Port Vendres is on the Narbonne and Cerbère railway, which connects with the Spanish line from Portbou to Barcelona.

**Life-saving station.**—A lifeboat is stationed in the port, and a rocket apparatus at the Custom-house.

*Chart 1804, Cape St. Sebastian to Cette.*

**Port Collioure.**—Cap Gros, about 3 cables westward of Port Vendres, is high and rugged; three-quarters of a mile farther westward is the small Port Collioure. On its western point is a steeple, and off the north point is the small Ile Saint Vincent, which is joined to the mainland by a mole, and a mole connects the islet to the outer rock to the south-eastward. About 70 yards eastward of the mole is a rock with 3 feet water. The port is frequented by small craft during off-shore winds, but it is open to northerly and easterly winds, which send in a heavy sea.

**LIGHT.**—A light is exhibited from a white iron support, on a hut which is masked by a shelter wall, 23 feet high, on the end of the mole extending from Ile Saint Vincent south-eastward to the rock.

**Anchorage.**—Small vessels anchor, in 3½ fathoms, off the beach between the steeple and citadel during north-west winds.

*General charts 1780, 2158a, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 40' W.*

**The town** (ancient Cauroliberis) (*Lat. 42° 32' N., Long. 3° 5' E.*) is situated on the west side of the port and is fortified, and in a sandy creek to the southward are fishermen's houses. There is a railway station.

5

**Life-saving station.**—A rocket apparatus is stationed at Collioure Custom-house.

**The coast** from Collioure trends west-north-westward about 1½ miles, gradually declining in height; then a low beach commences and turns northward 3½ miles to *Rivière du Tech*; on the beach are two towers, and Argelès town is situated at the foot of the slope, and 3 miles west-north-westward of Collioure. From *Rivière du Tech*, the low beach, defended by redoubts, trends northward 7½ miles to *Rivière du Tet*. A little inland are the towns Elne, Saint Cyprien, Saint Nazaire, and Canet. Perpignan, about 5 miles westward of Canet, is an important fortified town with about 39,510 inhabitants, and several large manufactories; *Rivière du Tet*, which flows east-south-eastward about 55 miles, passes on its northern side. Within the low beach are *Étangs de Saint Cyprien* and *de Saint Nazaire*; the latter is about 2½ miles long north and south, and communicates with the sea by a narrow bar entrance.

10

15

20

The bottom off the coast is generally sand, or sand and mud, but there are some rocky patches with from 11 to 18 fathoms water within the distance of about 3 miles. There are depths of from 11 to 14 fathoms one mile off the coast.

25

**The coast** from *Rivière du Tet* trends northward 12 miles, to Cap Leucate, and is a low beach.

Within the beach is *Étang de Leucate*, about 7½ miles long north and south, and 2¼ miles broad, with some narrow entrances from the sea. Several towns are visible from off the coast, Perpignan and Saint Laurent being the most conspicuous; the latter lies about 2 miles westward of the entrance to the small *Rivière de l'Agli*, which is 3½ miles northward of *Rivière du Tet*.

30

**Le Barcarès de Saint Laurent**, close northward of the entrance to l'Agli, is a few houses, recently built, and a battery on the beach, where vessels land and load goods.

35

**Light.**—A light is exhibited from a white iron support above a hut, 26 feet high, situated on the beach and in front of the village of Le Barcarès de Saint Laurent.

**Cap Leucate** is 236 feet high, flat-topped, whitish, and prominent; on the southern side of the cape is the small square Fort de Mattes. View at page 46.

40

*General charts 1780, 2158a, 449.*



*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 40' W.*

**Signal station.**—Near the extremity of the vertical cliff of the cape is a semaphore, 174 feet above high water; the house and tower are white and 30 feet high; the mast is black.

- 5 **Life-saving stations.**—A station to afford assistance in case of shipwreck is maintained at Argeles, and rocket apparatus are stationed at Saint Cyprien, Canet, Le Barcarès de Saint Laurent, and La Franqui.

- 10 **Anchorage.**—On the north side of Cap Leucate is a slight bay with an opening into Étang de la Palme. La Franqui, with  $1\frac{1}{2}$  fathoms water, extends north-westward across the bay, and between it and the opening into the étang there is anchorage for small vessels. With off-shore winds large vessels anchor one mile or more off-shore in about 9 fathoms.

- 15 **La Nouvelle.**—About  $5\frac{1}{2}$  miles northward of Cap Leucate is the entrance to Canal de la Nouvelle, leading to La Nouvelle and into Étang de Sigean and Étang de Bages, which extend 8 miles northward or towards Narbonne. View at this page. La Nouvelle, which is the port of Narbonne, stands on the south side of the canal one mile  
20 from its entrance. The canal is about 66 yards wide, and its entrance is between two moles, 110 yards apart, projecting 547 yards from the beach; the moles are being extended. The entrance is sometimes impracticable during strong easterly and south-easterly winds, the sea then breaking from  $1\frac{1}{2}$  to 2 cables off it. Caution is necessary in  
25 entering.

**Depths.**—Generally, from May to October, there is a depth of 18 feet in the canal, and from October to May a depth of about 15 feet.

- 30 **LIGHTS.**—A light is exhibited, at 50 feet above high water, from a white iron turret, 46 feet high, on the head of the South mole (*Lat.  $43^{\circ} 1' N.$ , Long.  $3^{\circ} 4' E.$* ).

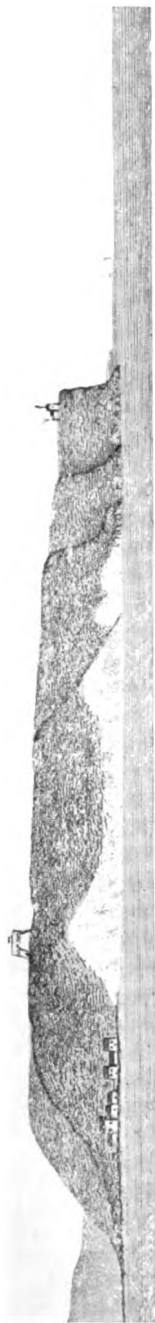
A light is exhibited, from a white iron column on a masonry base, 26 feet high, on the head of the North mole.

- 35 **Light-buoy.**—A black light-buoy, exhibiting a *red fixed* light, is moored about 164 yards off the South molehead, and in the line of its prolongation, to mark the outer end of the work in progress. It will be removed on the completion of the work.

**Buoys.**—Red buoys mark the outer part of the work in progress for extending the North mole.

- 40 **Pilots.**—There are two pilots and an assistant, one of whom lies off the entrance in fine weather, and in the entrance in bad weather. When unable to board a vessel, the pilot will direct her, using a flag

*General charts 1780, 2158a, 449.*



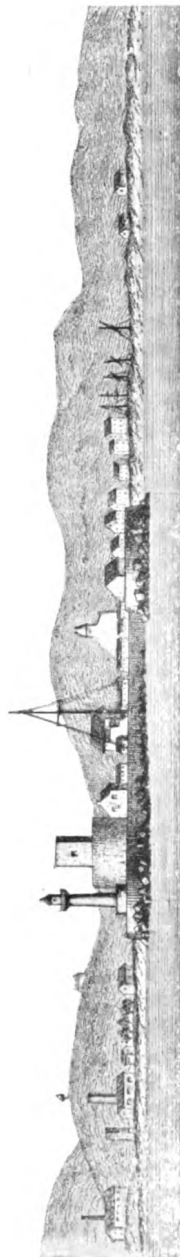
*Barcar's  
distan. about 2½ cables.*

*Fort de Malte.*

*Cap Leucate.*

*Semaphore,  
353° true.*

*La Nouvelle  
lighthouse.*



*Lighthouse,  
287° true, distant half a mile.*

*North mole.*

*Entrance to La Nouvelle.*



*West mole lighthouse,  
0° true, distant half a mile.*

*East mole lighthouse.  
Pilot station.*

*Entrance to Rivière de l'Hérault.*



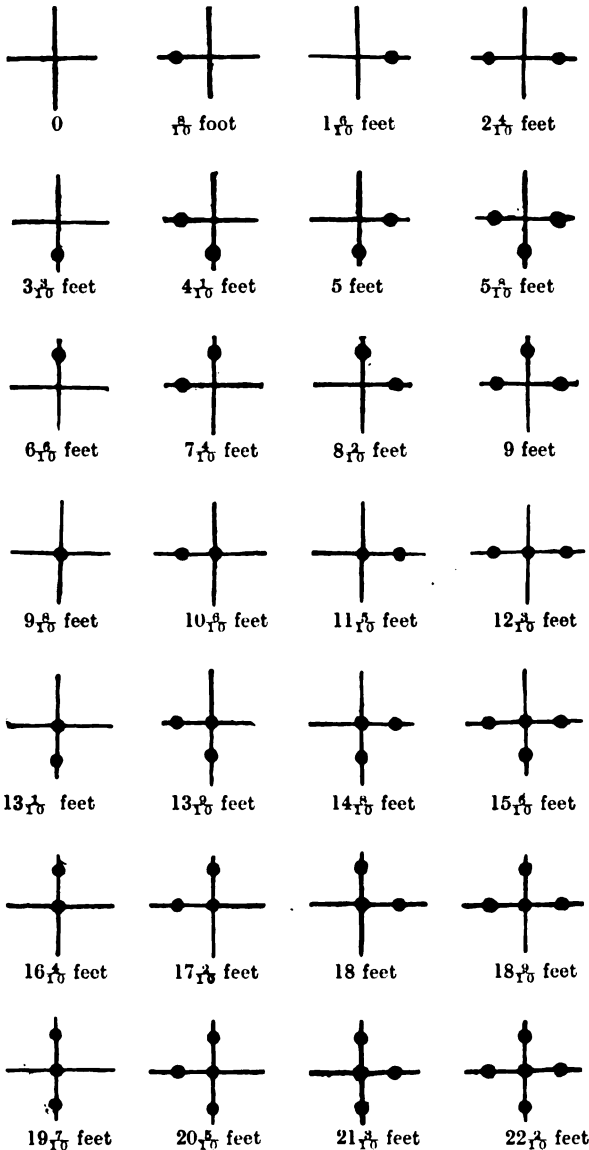
Chart 1804, Cape St. Sebastian to Cette. Var.  $11^{\circ} 40'$  W.

by day and a light at night. The pilot lookout station is on the tower of Fort Saint Charles at the shore end of the South pier.

The pilotage charge is 12 cents per ton for entering, and 8 cents per ton for leaving the port.

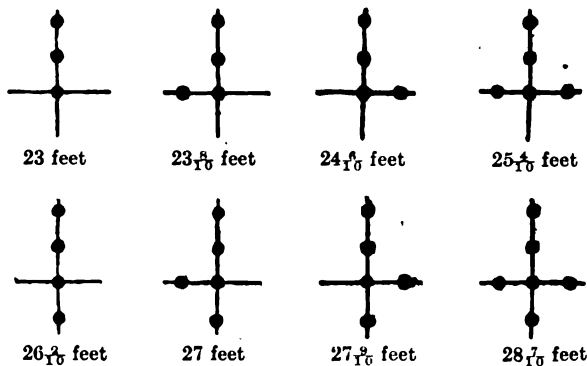
5

**Signals,** indicating the navigable depth of water in the channels, made at the entrance to Canal de la Nouvelle, and at the mouth of Rivière de l'Hérault (Lat.  $43^{\circ} 17'$  N., Long.  $3^{\circ} 27'$  E.).



General charts 1780, 2158a, 449.

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 40' W.*



A red pendant is hoisted when there is a swell, and a red flag when the entrance is impracticable.

**Supplies.**—Provisions can be obtained at La Nouvelle, and water  
5 from numerous pipes on the quays.

**Communication.**—The Narbonne and Cerbère railway crosses the canal at La Nouvelle, where there is a station. There is a steam tram to Corbières.

**Life-saving station.**—A lifeboat is stationed near the pilot  
10 station, and a line-throwing gun and a rocket apparatus near the Custom house.

**NARBONNE** (ancient Narbo Martius) (*Lat. 43° 11' N., Long. 3° 0' E.*), partly surrounded by a wall flanked with towers, stands in a fine plain about 10 miles northward of La Nouvelle, and  
15  $6\frac{1}{2}$  miles inland. It is divided by Canal de la Robine into two nearly equal parts, connected by three bridges; the streets are narrow and tortuous, but the esplanade in the middle of the town is a fine open space. The Church of St. Just (once the cathedral), which dates from 1272, and is unfinished, is a fine specimen of Gothic architecture.  
20 There are several manufactories, and a trade is carried on in wine, brandy, silk, oil, salt, wax, and honey. The population is 29,566. Canal du Midi or Languedoc connects the Garonne at Toulouse with the Mediterranean.

**The coast** from the entrance to Canal de la Nouvelle trends  
25 north-north-eastward 11 miles to Pointe Saint Pierre, and is a sandy beach, on which are Tour de la Vieille Nouvelle, and Tour de Montolieu. Pointe Saint Pierre is the eastern termination of Montagnes de la Clape. Grau de la Vieille Nouvelle,  $2\frac{3}{4}$  miles north-north-eastward of the canal, is the shallow entrance to Étang de Gruissan, which is  
30 separated by a long narrow strip of level land from Étang de Bages; Gruissan town, with its windmills, is about 3 miles northward of

*General charts 1780, 2158a, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 30' W.*

Grau de la Vieille Nouvelle on one of the arms of the lake, which has a second outlet by Grau du Grazel, a rocky channel south-east of the town. There is a tower and redoubt on Pointe Saint Pierre, and half a mile north-eastward is a battery, off which rocks extend about one cable. The land then becomes low and marshy, and 2 miles farther on is Tour de Vendres, between Étang de Pissevache, a small lake with a shallow rocky outlet, and a branch of Rivière de l'Aude.

**Life-saving stations.**—A rocket apparatus is stationed at La Vieille Nouvelle Custom-house, and there is a station to afford assistance in case of shipwreck at Saint Pierre.

**Rivière de l'Aude**, 3 miles north-eastward from Pointe Saint Pierre, communicates by a canal with Étang de Vendres, at the head of which, about 3 miles from the beach, is Vendres town. The water is shallow for nearly half a mile off the mouth of l'Aude, and one mile south-eastward is Banc de Vendres, about a mile in extent, with 10 fathoms water, rocky bottom. There are no off-lying shoals, and the coast can be approached by the lead.

**Rivière de l'Orb** entrance (*Lat. 43° 15' N., Long. 3° 18' E.*) is 3 miles north-eastward of l'Aude, and on the right bank of the river, 2½ miles from the beach, is Sérignan town.

**Light.**—A light is exhibited, at 24 feet above high water, from a white metal column, 18 feet high, situated on the head of the west mole at the mouth of Rivière de l'Orb.

**Life-saving station.**—A rocket apparatus is stationed at Valras village, on the west side of the mouth of Rivière de l'Orb.

**The coast** from the mouth of Rivière de l'Orb trends eastward 6½ miles to Rivière de l'Hérault, the beach between curving a little to the northward, and about 3½ miles north-eastward of the Orb is Tour la Roque.

Grau de Maire, a small opening into an étang, is about 2½ miles north-eastward of the Orb, and the small town Portiragues lies about 2 miles northward of it.

Trou de Vias, the entrance to a small lake, is about half a mile westward of Rivière de l'Hérault entrance, and Vias village, with a black pointed steeple, lies 1½ miles north-north-westward of the trou. The bottom off the trou is fine sand and mud; a vessel obliged to beach should do so here.

**RIVIÈRE de L'HÉRAULT.**—The entrance to Rivière de l'Hérault is about half a cable wide between two moles which project 1½ cables southward from the coast, and generally has a depth of 11 feet in the fairway. View at page 46.

*General charts 1780, 2158b, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 30' W.*

The land in the vicinity of the river is very low; it is cultivated, and there are some houses and trees.

**LIGHTS.**—A light is exhibited, at 41 feet above high water, from a small white turret, surmounted by a black ball, 36 feet high, on the western molehead at Rivière de l'Hérault entrance.

A light is exhibited, at 41 feet above high water, from a white turret, 36 feet high, on the eastern molehead.

**Shoal.**—A shoal, with about 6 feet water, extends about  $1\frac{3}{4}$  cables southward from the western molehead, and there is a curved channel, about 50 yards wide, with 12 feet water, between the shoals and the eastern mole.

**Anchorage.**—There is open anchorage in fine weather off the coast westward of Rivière de l'Hérault, in from 5 to 10 fathoms, muddy sand.

Banc du Libron, about 3 miles south-westward of the river entrance, has a depth of 10 fathoms, rock bottom, and must be avoided. Vessels should not anchor between the river entrance and Ilot de Brescou.

**Pilots.**—There is a pilot and an assistant. Vessels are boarded 2 miles off the entrance in fine weather, and in bad weather, when the pilot is unable to go out, he directs vessels by signals with a flag from a boat in the entrance. The pilot station is about 2 cables within the inner end of the eastern mole.

Sailing vessels, French and foreign subject to the most favourable treatment, pay 0.12 francs per ton pilotage both on entering and leaving, as well as a fixed charge of 5 francs if they are moored below Montmorency bridge.

**Depth of water signals.**—Signals indicating the depth of water are made from a mast and yard near the pilot station. See page 47.

The tide is insignificant, but with north-westerly winds the river may suddenly fall 3 feet. From November to May, the season of floods, the current is sometimes very strong, and sets southward from the entrance, but is not felt at a distance of more than  $1\frac{1}{2}$  miles.

**Life-saving stations.**—A lifeboat is stationed near the inner end of the western mole at the entrance to Rivière de l'Hérault, and rocket apparatus are maintained at Grau d'Agde; at Libron,  $1\frac{3}{4}$  miles westward of the entrance to l'Hérault; and at Agde Custom house.

**AGDE** (ancient Agatha) (*Lat. 43° 19' N., Long. 3° 28' E.*), situated on Rivière de l'Hérault, about  $2\frac{1}{4}$  miles from the sea, is entirely built of black basaltic lava, and, being surrounded by a wall

*General charts 1780, 2158a, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 30' W.*

with towers of the same material, has a grim appearance, and is called by the country people *Ville Noire*. Canal du Midi passes the north side of the town, between it and Vias village, and it is connected to the port of Agde by a branch canal. There is some foreign and a considerable coasting trade; shipbuilding is carried on, and there are distilleries and manufactures of verdigris and soap. Vessels of about 9 feet draught can go up the Hérault to the town. 5

**Canal du Midi** is sometimes called *Canal des Deux Mers*, because it unites the Mediterranean with the Atlantic. Its length from the basin, where it joins the Garonne at Toulouse, to near Agde, where it falls into Étang de Thau, is 155 English statute miles; it is 65 feet wide at the surface, and 32 feet at the floor. The entrance to the canal from Étang de Thau is at Les Onglous, between two jetties, and has a depth of 5 feet. There is a small dry dock at Les Onglous. 15

The summit level is 719 feet above the Mediterranean, and there are 46 locks on the declivity towards the Mediterranean, and 18 between the summit level and Toulouse; it is navigated by barges of about 100 tons.

**Cap d'Agde**, 3 miles eastward of *Rivière de l'Hérault*, on westerly bearings, appears to descend in a gentle slope and to terminate in a low, rocky point, on the summit of which is a battery; the intermediate coast is a low beach, from which shallow water and rocky patches extend 4 cables. Mont d'Agde,  $1\frac{3}{4}$  miles northward of the cape, is a conical hill, 377 feet high, with an old lighthouse and a semaphore on its summit; on its southern slope is an old castle. View on chart 1804. 20

**Signal station.**—The semaphore on Mont d'Agde is a white house and tower, 18 feet high.

**Îlot de Brescou** (*Lat. 43° 16' N., Long. 3° 30' E.*), about three-quarters of a mile south-westward of Cap d'Agde, is  $1\frac{1}{2}$  cables in extent, low, and rocky, with a reef and some isolated rocks extending about 4 cables north-westward. Fort Brescou stands on the islet. 25

**LIGHT.**—A light is exhibited, at 69 feet above high water, from a whitish circular turret, 45 feet high, situated on an old magazine to the southward of Fort Brescou. 35

**Roches de l'Âne**, with one foot water, lie about a cable south-westward from Îlot de Brescou; they are the shoalest part of a narrow reef, with one fathom water, which extends about 40 yards north-eastward from them. A rock, with 2 fathoms water, lies 20 yards south-eastward of Roches de l'Âne. 40

**Roche de l'Aloze** (de la Lauze).—Beacon.—From the western part of Cap d'Agde a mole extends 4 cables towards Îlot de Brescou, leaving a channel 4 cables wide between; Roche de l'Aloze, in the

*General charts 1780, 2158a, 449.*



*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 30' W.*

middle of this channel, has 2 feet water, and is marked by a masonry beacon, painted red and black in horizontal stripes, and surmounted by a red ball, 22 feet high.

- 5     **Anchorage.**—Pointe de Roche Longue, one mile north-westward of Ilot de Brescou, is skirted by a reef, and there is a battery on it; a narrow channel, with  $1\frac{1}{2}$  fathoms water, between the point and the rocks north-westward of Brescou, leads to an anchorage for fishing vessels, in from 2 to 3 fathoms water, sand and weed. The  
10 best entrance to the channel at its eastern end is between Roche de l'Aloze and the end of the mole; this passage is narrow, but has  $2\frac{3}{4}$  fathoms water. Local knowledge is necessary to use these channels; the chart is not a sufficient guide.

- 15 There is anchorage with westerly winds eastward of Cap d'Agde, in depths over 5 fathoms; the holding ground is bad.

**The coast** from Cap d'Agde trends north-eastward 11 miles to Port Cette, and is a low narrow beach separating Étang de Thau from the sea.

- 20 There are 9 fathoms water one mile and from 12 to 14 fathoms 2 miles off-shore; the bottom is generally mud, but rock in places and near the beach.

**Life-saving station.**—There is a rocket apparatus at Grau de la Quinzième Custom house, 4 miles north-eastward of Cap d'Agde.

*Plan, Port of Cette, on chart 1805.*

- 25     **Mont de Cette** (Saint Clair) (*Lat. 43° 24' N., Long. 3° 41' E.*), about 6 cables north-westward of Port de Cette, is 590 feet high, and there is an old hermitage and Pilier Saint Clair, a white tower, on its summit; it resembles Mont d'Agde, and from a distance both appear like islands, being in the vicinity of low land and lakes, but there is  
30 high land a short distance north-eastward of Mont de Cette. Views on charts 1804, 1805.

**Signal station.**—There is a semaphore on the summit of Mont de Cette; the house and tower are white and 28 feet high; the mast is black.

- 35     **Cap de Cette** is the south-eastern extreme of the mount; there is a battery on it, and Fort Saint Pierre and Citadelle Richelieu are a little to the northward.

- PORT DE CETTE.—Aspect.**—Numerous huts on the slopes of Mont de Cette; Citadelle Richelieu, about 2 cables westward of the  
40 port; the town, with its clock tower surmounted by a gilt Virgin; the lighthouses; the breakwater; and, on the eastern side of the port, the large buildings of the railway goods station, are conspicuous from

*General charts 1804, 1805, 1780, 2158a, 449.*

*Plan, Port of Cette, on chart 1805. Var. 11° 30' W.*

the approach to Cette. The square church towers of Marseillan and Mèze, and the clock tower in the small town, Frontignan, at the foot of Montagnes de Gardiole, north-eastward of Cette, are also noticeable.

5

**Approach.—Reserved fairway when submarine vessels are exercising.**—When the flag, upper half yellow, and lower half red, indicating that submarine vessels are exercising in the vicinity of the port, is hoisted at the signal station, or by the escorting vessel, vessels must keep in the area limited, northward by the coast eastward of the port; southward, by a line from Saint Clair lighthouse through the lighthouse on the eastern arm of the breakwater; and eastward, by a line drawn 180° true from Frontignan clock tower; in this area submarines are prohibited from exercising submerged. See Regulations, page 28.

10

15

**Buoy.**—A sphero-conical black buoy, surmounted by a cylinder, is moored, in  $3\frac{1}{4}$  fathoms water, about  $4\frac{1}{2}$  cables south-westward of Cap de Cette (*Lat. 43° 24' N., Long. 3° 42' E.*), and marks the southern limit for depositing dredged material.

**Harbour.**—The harbour is situated within Môle Saint Louis, which extends 1,900 feet eastward from Fort Saint Pierre, at the south-eastern foot of Mont de Cette, and Jetée de Frontignan, which extends 1,600 feet south-south-eastward from the shore about three-quarters of a mile north-eastward of Cap de Cette. It is protected by a curved breakwater,  $3\frac{1}{2}$  cables long, which extends across and about  $1\frac{1}{4}$  cables southward of the entrance, and is continued by the eastern arm, nearly half a mile further eastward; the breakwater is 26 feet high. The harbour is available for vessels of 23 feet draught.

25

There is a large battery on Môle Saint Louis, and a battery and a lazaretto on the curved breakwater.

30

**Entrances.**—Two channels lead into the harbour. La Passe de l'Ouest is between the breakwater and Môle Saint Louis; Le Pilon, a large square masonry pillar, 16 feet high, lies half a cable south-eastward of Môle Saint Louis lighthouse, and marks the edge of the rocks bordering the mole. The depths for a cable southward of Môle Saint Louis are less than 16 feet. The pass is about half a cable wide and 22 feet deep between the depths of 16 feet on each side; the depths have considerably decreased for some years in the pass and south-westward of it to Baie de la Conque.

35

La Passe de l'Est, northward of the eastern arm of the breakwater, is about a cable wide and has a least depth of 24 feet in the fairway. Northward of a line from Môle Saint Louis and Jetée de Frontignan lighthouses, and near Jetée de Frontignan, the water shoals rapidly to

40

*General charts 1804, 1805, 1780, 2158a, 449.*

*Plan, Port of Cette, on chart 1805. Var. 11° 30' W.*

less than 3 feet. During fresh winds from seaward the sea breaks right across the pass.

**Bassins.**—L'Avant port, inside the entrance, is about 2 cables in extent, and has depths of from  $3\frac{3}{4}$  to  $4\frac{1}{2}$  fathoms to about 40 yards from the mole and jetties.

Vieux bassin, westward of L'Avant port and northward of Môle Saint Louis, has depths of from 2 to  $3\frac{3}{4}$  fathoms, and with the exception of Quai Richelieu, is used entirely by fishing vessels; it extends northward into the canal channel, which has depths of from 16 to 22 feet, and of 25 feet alongside the quays. Canal de Cette leads northward from the channel, passing under swing-bridges, into Étang de Thau; it has depths of from 9 to 23 feet.

Bassin de Pétrole, in the north-eastern part of L'Avant port, has a depth of 22 feet, and a wharf 130 yards long; it is used solely for vessels with petroleum, and there are petroleum reservoirs on Jetée de Frontignan.

Nouveau bassin or Bassin principal, north-westward of L'Avant port, is 820 feet long on its western and northern sides, with an area of  $17\frac{1}{2}$  acres, and a depth of 24 feet; the entrance is 160 feet wide.

Darse de la Peyrade, northward of Nouveau bassin, has depths of from 6 to 8 feet; its eastern end joins Canal de la Peyrade, and its western end runs into Canal de Cette.

Bassin de la Compagnie du Midi, the northern basin, is connected to Canal de Cette by Canal Lateral; the basin and Canal Lateral have depths of from 16 to 23 feet.

Canal Maritime, which joins the three last-mentioned basins, is 230 feet wide, except at the three swing-bridges where it narrows to 66 feet, and has a general depth of 23 feet, but there is less water in its northern part, and alongside the quays.

**LIGHTS.**—**Mont de Cette.**—A light is exhibited, at 303 feet above high water, from a white octagonal stone tower, 74 feet high, on the slope of Mont de Cette (*Lat. 43° 24' N., Long. 3° 41' E.*),  $4\frac{1}{2}$  cables westward of the eastern end of Môle Saint Louis.

**Môle Saint Louis.**—A light is exhibited, at 105 feet above high water, from a white circular tower, 96 feet high, on the head of Môle Saint Louis.



Môle Saint Louis lighthouse.

*General charts 1804, 1805, 1780, 2158a, 449.*

*Plan, Port of Cette, on chart 1805. Var. 11° 30' W.*

**Breakwater.**—A light is exhibited, at 46 feet above high water, from a white iron turret, 24 feet high, on the north-eastern extreme of the curved part of the breakwater (*Lat. 43° 24' N., Long. 3° 42' E.*).

A light is exhibited, at 69 feet above high water, from a white circular tower, 67 feet high, on the eastern end of the breakwater.



Breakwater lighthouse.

**Jetée de Frontignan.**—A light is exhibited, at 44 feet above high water, from a white iron turret, 37 feet high, on the head of Jetée de Frontignan.

**Nouveau bassin.**—A light is exhibited from a white iron shelter on the western side, and a light from a similar shelter on the eastern side, of the entrance to Nouveau bassin.



Jetée de Frontignan lighthouse.

**Buoys.**—Two black mooring buoys lie in  $2\frac{1}{2}$  fathoms water on the northern side of the curved breakwater.

**Pilotage.**—There are 20 pilots and 5 assistants at Cette, and pilots constantly cruise between Îlot de Brescou and Golfe d'Aigues Mortes, both by day and at night, in favourable weather. When unable to go out, pilots are stationed at the entrances to the passes, and also near the breakwater if possible.

The charges for pilotage, which is compulsory, are: Merchant sailing vessels leaving the port 0fr. 10c. per ton; entering the port, provided the pilot boards outside the passes, or, if it is impossible to go out, directs the vessels by signals or voice, 0fr. 10c. per ton, if from ports outside the Mediterranean, and 0fr. 5c. per ton from Mediterranean ports.

Besides these compulsory dues, the same vessels, when they accept the services of a pilot for entering, pay the following tonnage dues: By day, 0fr. 25c. per ton if they are boarded more than 6 miles from the entrance; 0fr. 15c. if boarded between 3 and 6 miles from the entrance; and 0fr. 8c. if boarded less than 3 miles from the entrance.

At night, 0fr. 25c. if boarded more than 3 miles from the entrance, and 0fr. 10c. if less than 3 miles.

All merchant vessels pay, for entering only, a fixed rate of 0fr. 2c. per ton.

Vessels of war pay for entering or leaving the port, or anchorage off the port, 30fr. if less than 1,000 tons displacement; 50fr. from 1,000 to 2,000 tons; 70fr. from 2,000 to 5,000; and 100fr. over 5,000 tons.

*General charts 1804, 1805, 1780, 2158a, 449.*

*Plan, Port of Cette, on chart 1805. Var. 11° 30' W.*

**Sea level.**—The wind causes considerable variations in the height of water. On 25th December, 1870, during a south-easterly gale, the water rose rapidly 3 feet; on 14th July, 1841, without apparent cause, it rose 5 feet in a minute, and made several oscillations before returning to its ordinary level.

**Current.**—The current on the coast and in the passes sets generally south-westward, except during westerly winds, at a rate which sometimes attains 4 knots; it is stronger outside than inside the breakwater (*Lat. 45° 24' N., Long. 3° 43' E.*). In the port, with fresh north-westerly winds, the current generally runs from Étang de Thau, and in the canal may attain a rate of 2 knots; with winds from seaward the contrary is the case, and the current then runs into the lake. These currents, which sometimes turn suddenly, in certain cases render the passage of vessels in the canal difficult, and cause much inconvenience to boats.

**Directions.**—Steam vessels entering by La Passe de l'Est keep southward of the alignment of the lighthouses of Môle Saint Louis and Jetée de Frontignan, or at night keep in the *white* sector of Môle Saint Louis light, with Mont de Cette light just northward of it. After passing the lighthouse on the eastern end of the breakwater, bring Mont de Cette and Môle Saint Louis lighthouses in line, which leads close southward of Jetée de Frontignan, when turn into L'Avant port.

Entering by La Passe de l'Ouest, keep Jetée de Frontignan lighthouse well open southward of Le Pilon until past the black buoy south-westward of Cap de Cette, and when in the pass do not close Môle Saint Louis within a cable until past Le Pilon.

At night, keep in the *white* sector of Môle Saint Louis light until the *white* light on the breakwater is visible, and then steer for it until within the western arm of the breakwater.

Then steer for Jetée de Frontignan light, and when the lights at the entrance to Nouveau bassin are well open eastward of Le Pilon, turn into L'Avant port, giving Le Pilon a berth of not less than half a cable.

**Sailing vessels.**—It should be remembered when approaching Cette that south-easterly winds in the offing often turn to north-east on the coast.

From the southward after passing Cap Creus with south-easterly winds, stand north-eastward, and make the land well to windward of the port. A vessel to leeward will have both wind and current against her, and should at once get to sea, and not embayed off a low coast, which is usually obscured by mist, with a heavy swell, and no port of refuge. From the eastward also make the land to windward, so as to profit by the current, and not risk missing the entrance.

*General charts 1804, 1805, 1780, 2158a, 449.*

*Plan, Port of Cette, on chart 1805. Var. 11° 30' W.*

When bound for Cette and there are signs of a south-easterly gale (haze, swell, and falling barometer), if near Port Vendres obtain shelter there; or, if unable to reach Cette in time, run for Golfe d'Aigues Mortes, where good shelter can be obtained from easterly and south-easterly gales northward of Pointe de l'Espiguette. 5

**Tugs.**—There are eight tugs in the port; when the wind is strong from seaward they are unable to go out.

**Port regulations.**—All vessels when under way inside the port (*Lat. 43° 24' N., Long. 3° 42' E.*) must hoist their national flag. 10

The swing-bridges will be opened on request as follows:—

From 1st April to 30th September, from 5h. 30m. a.m. to 7h. p.m.; from 1st November to 28th February, from 7h. a.m. to 6h. p.m.; during March and October, from 6h. a.m. to 7h. p.m.

Nevertheless, the bridges will remain closed every day from 8h. a.m. to 9h. a.m.; and from noon to 1h. p.m., and also any other time the Port service may consider necessary. 15

Independently of the hours fixed above, the bridges will remain closed, Sundays and holidays, from 10h. a.m. till noon, and from 2h. p.m. till night. 20

During the night and at all hours for closing during the day, but outside the intervals the Port service may consider necessary, the Captain of the Port may allow the passage through a bridge, at a time he will fix, provided a request is made two hours in advance by day, and for movements at night before the hours fixed above as normal limits. 25

The captains of vessels passing through a bridge on Sundays or holidays must lend assistance in working the bridge.

The bridges will not be opened until a vessel has made the necessary arrangements to effect a quick passage through. Should a vessel not be able to pass through the bridge when she is in the passage, she must drop astern if requested to do so by the bridge man. No vessel or boat is allowed to remain in the bridge channel. 30

All vessels going with the current have preference over those going against it in passing the bridges. The vessels are admitted to the channel in the order they arrive each way, and two vessels must never pass together. 35

**Petrol.**—Vessels carrying petrol or other inflammable matter, are berthed in Bassin Petrole; should there be no room there, and, on account of the weather, it would be dangerous for a vessel to remain outside the port, the Captain of the Port may allow a vessel to be berthed at 4-5 jetty in L'Avant port, all necessary precautions being taken. The same berth may be given to vessels which have discharged their cargoes and wish to leave at once. Other regulations for vessels : 40

*General charts 1804, 1805, 1780, 2158a, 449.*

*Plan, Port of Cette, on chart 1805. Var. 11° 30' W.*

carrying small quantities of petrol, for discharging petrol, and for watch-men, are the same as at other French ports.

**Town.**—The town (*Lat. 43° 24' N., Long. 3° 42' E.*) lies at the eastern foot of Mont de Cette, and partly on the narrow neck of land separating Étang de Thau from the sea; there are extensive salt works on the neck. The town is well built; it derives its importance chiefly from its harbour, and from its being the Mediterranean port of the Canal du Midi. Cette was founded by Louis IV. in 1666; the population was 33,892 in 1911.

A British Consul is stationed here.

**Trade.**—The principal exports are wines, liqueurs, alcohol, lime, superphosphates, and bauxite; the imports are coal, coal-tar, cork, cereals, mineral oils, chemical manures, phosphates, sulphur, oak staves, and wines. The sardine and oyster fisheries are carried on along the coast, and the salt works of the adjoining lakes are extensive.

**Shipping.**—The number of vessels entering the port in 1911 was 1,637, with an aggregate tonnage of 1,297,298 tons.

**Supplies** are plentiful; water is very good, and is obtained from pipes on the quays or by tank vessel.

**Coal.**—About 28,000 tons of coal are imported annually, and about 1,400 tons are usually in stock. Any quantity of French coal can be delivered in three days from the mines. Coaling is performed by lighters, of which there are 40, averaging 60 tons each, or from a wharf, 2,500 feet long, with 23 feet water alongside.

**Repairs** can be executed.

**Hospital.**—A mixed hospital will receive men from vessels of war. The crews of merchant vessels are admitted at a charge for officers, with separate rooms, of 6fr., and for men of 2fr., per head daily.

**Life-saving stations.**—A lifeboat is stationed in Vieux bassin; a life-saving gun at the Custom house; a rocket apparatus on Môle Saint Louis, and at the lazaretto on the curved breakwater is a station to afford assistance in case of shipwreck.

**Communication.**—There is railway and telegraphic communication with all parts of France and Spain. Steamers run daily to Marseille; weekly to Port Vendres, Oran, and Tunis.

*Chart 1804, Cape St. Sebastian to Cette.*

**ÉTANG DE THAU** is extensive, with depths of from 1½ to 6 fathoms water; it is connected with the sea by Canal de Cette, and is accessible to vessels of less than 10 feet draught. On the shores of the étang are the ports of Marseillan and Mèze, besides several villages.

*General charts 1804, 1805, 1780, 2158a, 449.*

*Chart 1804, Cape St. Sebastian to Cette. Var. 11° 30' W.*

**Marseillan**, at the south-western end of the étang, and one mile northward of the entrance to Canal du Midi, has a small harbour, protected by a breakwater, accessible to vessels of less than 6 feet draught. The port of Mèze, on the north-west shore and 5 miles north-eastward of Marseillan, is a basin 300 yards long and 45 yards wide, protected by jetties; there is a depth of 10 feet in the southern part of the port, but the northern part is shoal.

**Lights.**—A light is exhibited from a beacon tower, 20 feet high, painted red and black in horizontal bands, on Roche de Roquérols.

A light is exhibited from a turret, 13 feet high, on the western point of the northern entrance to Canal de Cette.

A light is exhibited from a black iron pole surmounting a red shed, 21 feet high, on the East pierhead at Mèze.

A light on Quai de Bouziques, also a light on the southern, and a light on the northern, jetty at Marseillan, are maintained by the municipality.

A light is exhibited from a round tower on the southern jetty-head of Canal du Midi, Les Onglous.

**Beacons.**—There are several beacons in Étang de Thau, for positions *see* the chart.

*Chart 1805, Cette to Marseille.*

**The coast** from Cette trends north-eastward  $12\frac{1}{2}$  miles to Grau de Palavas (*Lat. 43° 32' N., Long. 3° 56' E.*), and is a low narrow beach; within the beach is a chain of lakes, the principal of which are Étang d'Ingri (Ingril), Étang de Palavas, and Étang de l'Arnel (Arnel), with the towns of Frontignan, Vic, and Mirevals (Mireval); Frontignan square steeple, 3 miles north-eastward of Cette, is conspicuous; about  $3\frac{1}{2}$  miles inland are Monts Gardiole, 774 feet, and Bauzéli, 614 feet high, which, on north-easterly bearings, seem a prolongation from Mont Cette; on the beach are some coastguard stations, many of which are in ruins, and some houses. View of Mont Bauzéli at page 60.

Rocky banks, with from 4 to 6 fathoms water, extend 2 miles off the coast, the depths decreasing towards the shore. Grau de Palavas is the outlet of Lez, a small river flowing between two moles, by which fishing boats of less than  $1\frac{1}{2}$  feet draught enter the lakes; there is a redoubt at the grau. View at page 60.

**Lights.**—**Grau de Palavas.**—Leading lights are exhibited from the East mole. The front light is shown from a lamp post, 12 feet high; and the rear light from a lamp post, 14 feet high, situated against the lifeboat house, 50 yards,  $326^\circ$  true, from the front light. The lights in line lead to the entrance to the grau.

**Life-saving stations.**—Rocket apparatus are stationed at La Peyrade and Morin Custom houses. A lifeboat is stationed on the

*General charts 1804, 1780, 2158a, 449.*



*Chart 1805, Cette to Marseille. Var. 11° 20' W.*

East mole of Grau de Palavas, and a rocket apparatus and life-saving gun at the Custom house there.

- GOLFE D'AIGUES-MORTES.**—The coast from Grau de  
 5 Palavas curves eastward and south-eastward  $9\frac{1}{2}$  miles, to Grau du Roi,  
 and thence southward 3 miles to Pointe de l'Espiguette, forming Golfe  
 d'Aigues-Mortes; it is a low, narrow, sandy beach, behind which are a  
 series of lakes, and nearly in the middle is the redoubt of Grand  
 Travers in ruins; rocky banks with from 4 to 5 fathoms water extend  
 10 along, and to a distance of  $1\frac{1}{2}$  miles from, the shore. Montpellier town  
 is  $5\frac{1}{2}$  miles northward of Grau de Palavas. Canals, a short distance  
 inland, extend from Étang de Thau to Aigues-Mortes.

**Grau de Pérols**, or de Carnon, 2 miles north-eastward of Grau  
 de Palavas, is available for boats.

- 15 **Life-saving station.**—A rocket apparatus is stationed at Grau  
 de Pérols.

- Grau du Roi** (*Lat. 43° 32' N., Long. 4° 8' E.*), which is marked  
 by an old lighthouse, numerous houses, and two white light-turrets  
 on the moles, view at page 60, is the entrance to Canal de la Grande  
 20 Roubine, leading to Aigues-Mortes town, 3 miles east-north-eastward.  
 The entrance, between two moles, which extend about one cable from  
 the beach, is about 65 yards wide, with depths of from 11 to 16 feet  
 on the bar; the canal is 60 feet wide at the bottom and 100 feet at  
 the surface, and has a least depth of 10 feet. The northern mole  
 25 extends under water 66 yards south-westward from the mole head.  
 Close to the coast, northward of the entrance to the grau, is a large  
 hospital, and between the hospital and cemetery is Villa Leenhardt or  
 des Dunes, a large house.

- LIGHTS.**—A light is exhibited, at 33 feet above high water,  
 30 from a white iron turret, 31 feet high, on the North mole head of Grau  
 du Roi.

A light is exhibited, at 33 feet above high water, from a white iron  
 turret, 31 feet high, on the head of the South mole.

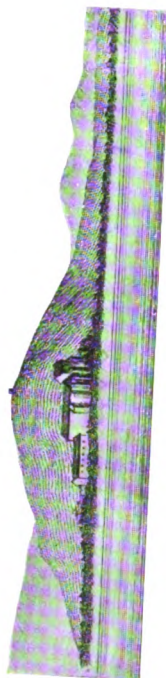


North mole lighthouse.

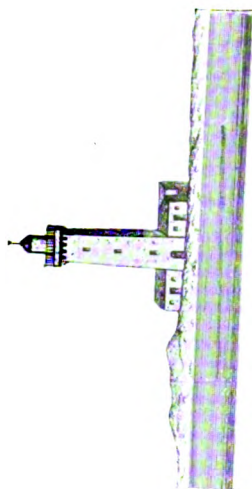


South mole lighthouse.

*General charts 1780, 2158b, 449.*



Mont Bauzelli.  
Maguelonne church, bearing  $294^{\circ}$  true.  
From Maguelonne anchorage.



Pointe de l'Esquirol lighthouse from the south-westward.



Grau de Palavas  
from the south-eastward.

Station.

Montpellier.

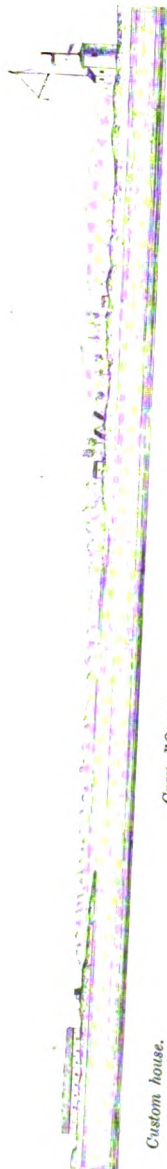
Pic Saint Loup.



Grau de Roi. Old lighthouse, bearing  
 $33^{\circ}$  true, distant one mile.

Tour Constance.

Golfe d'Aigues Mortes.



Custom house.

Grau d'Orgon.

Entrance to Le Petit Rhône.

Old semaphore.



*Chart 1805, Cette to Marseille. Var. 11° 20' W.*

A light is exhibited from the middle of a swing-bridge 580 yards within the mole lights.

**Life-saving station.**—A lifeboat and rocket apparatus are stationed at Grau du Roi, the latter at the Custom house. 5

**Aigues-Mortes**, a town with about 4,000 inhabitants, is situated in the midst of salt marshes and lagoons, the exhalations from which render it unhealthy. It is half-deserted, but is of interest as a perfect example of a feudal fortress in the 13th century. Aigues-Mortes was formerly a seaport, but is now rather more than 3 miles inland. Salt 10 is the principal production, and the people are chiefly engaged in fishing.

**Anchorage.**—The best anchorage in Golfe d'Aigues-Mortes is in about  $5\frac{1}{2}$  fathoms, mud and sand, with Pointe de l'Espiguette light-house bearing  $150^\circ$  true, and the hospital seen between the two mole light-turrets, or at night with Espiguette light bearing between  $145^\circ$  and  $155^\circ$  true, and the North mole *red* light between  $10^\circ$  and  $30^\circ$  true. The anchorage is open from the southward and westward, and becomes very dangerous with southerly winds; south-westerly winds seldom last long, and as the holding ground is good vessels can remain if they 20 prefer not to get under way.

**Pointe de l'Espiguette** (*Lat.  $43^\circ 29'$  N., Long.  $4^\circ 8'$  E.*) is a round low sandy point. Shoal water extends off the point nearly to the 5-fathom line, a distance of about half a mile; there are 8 fathoms water about one mile from the point. Villa Leenhardt in line with the South mole light-turret leads westward of the shoals, in  $3\frac{1}{2}$  fathoms water. The point is extending westward about 16 yards annually. 25

**LIGHT.**—A light is exhibited, at 85 feet above high water, from a square tower over a basement, 90 feet high, on Pointe de l'Espiguette. View at page 60. 30

**Signal station.**—There is a signal station about 100 yards westward of Pointe de l'Espiguette lighthouse.

**The coast** from Pointe de l'Espiguette trends east-south-eastward and eastward, 12 miles, to Grau d'Orgon or mouth of Le Petit Rhône, and is sandy and backed by low marshy land with numerous small lakes. Between Pointe de l'Espiguette and La Pinède wood, about 8 miles eastward, the beach is scarcely marked by a line of dunes, which attain a height of about 25 feet one mile eastward of the light-house, where they are named Baronnets. Inland is a house like a tower, and Peccais factory chimney. 40

About 4 miles eastward of Espiguette lighthouse is Grau du Rhône Vif, now closed, marked by a flagstaff near the old life-saving station. Westward of Grau d'Orgon, within the coast, is La Pinède, a little

*General charts 1780, 2158a, 449.*

*Chart 1805, Cette to Marseille. Var. 11° 10' W.*

pine wood, and on the western point of the grau is a guard or Custom house. There is a bar at the entrance to Grau d'Orgon, view at page 60, which can be crossed, but only in fine weather, by boats of less  
 5 than 3 feet draught. The 5-fathom line of soundings is a mile off-shore, fine sand bottom, and there are 10 fathoms, mud, from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  miles off-shore. At  $1\frac{1}{4}$  miles eastward of Grau d'Orgon, on an isolated hillock, is les Saintes Maries, a small village, with a large church. View at this page.

10 **Life-saving stations.**—A rocket apparatus is stationed at Grau d'Orgon Custom house and there are a rocket apparatus and aid station at les Saintes Maries Custom house.

**Wireless telegraph.**—There is a wireless telegraph station at les Saintes Maries; it is open to the public day and night; the call  
 15 letters are F.F.S. The masts at the station are good marks.

**GOLFE DES SAINTES MARIES.**—The shore of Golfe des Saintes Maries, between Grau d'Orgon and Pointe de Beauduc (*Lat.  $43^{\circ} 22' N.$ , Long.  $4^{\circ} 34' E.$* ),  $8\frac{1}{2}$  miles south-eastward, is a low sandy beach curving eastward and southward, the land in the vicinity  
 20 being low and marshy. At the head of the gulf is the large Étang du Valcarès. Views on chart 1805.

**LIGHT.**—**La Gacholle.**—A light is exhibited, at 57 feet above high water, from a white masonry tower, 56 feet high, with main building, about half a mile within the beach, at la Gacholle, at  
 25 the head of Golfe des Saintes Maries.

**Pointe de Beauduc** is low, rounded, and projects westward; shoal water extends about half a mile seawards round the point, which is advancing westward about 16 yards annually; the point should be passed at the distance of about one mile; the *green* sector of la  
 30 Gacholle light shows over the point and one mile westward of it.

**Beacon.**—A black wooden pyramidal beacon, surmounted by a metal disc, is situated on the western extreme of the point.

**LIGHT.**—A light is exhibited, at 84 feet above high water, from a masonry tower, 87 feet high, with main building, on the sand dunes  
 35 near Pointe de Beauduc.

**Fog signal.**—There is a fog signal at the lighthouse.

**Anchorage.**—Anchorage de Beauduc, on the eastern side of the gulf, affords shelter from winds between north, through east, and south-east, in from  $5\frac{1}{2}$  to  $6\frac{1}{2}$  fathoms, sand and mud, good holding  
 40 ground,  $1\frac{1}{2}$  miles northward of Beauduc beacon, and one mile from the shore, but it should be quitted with southerly and westerly winds. Small vessels anchor closer inshore, where there is more shelter in about 4 fathoms.

*General charts 1780, 2158a, 449.*



*Church.*  
Les Saintes Maries.

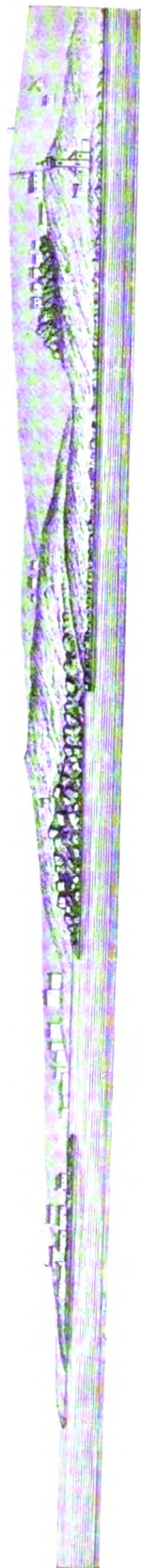


*Cap Couronne lighthouse.*      *Cap Méjean.*  
*Carry.*      *Mont Gardaban.*  
Carry and Cap Méjean open southward of Cap Couronne.



*South mole lighthouse,*  
*235° true.*      *Tour Saint Louis.*  
Canal Saint Louis from l'Anse du Repos.

*Gloria huts.*



*Carro.*      *Church.*  
Cap Couronne, from half a mile to the southward.      *Cap Couronne lighthouse.*



*Chart 1805, Cette to Marseille. Var. 11° 10' W.*

During strong easterly and south-easterly winds the weather is very thick, and the coast is often obscured; the constant use of the lead is then necessary.

At night, from the eastward, steer westward until in the *white* sector of la Gacholle light, when steer towards the light; when Faraman light bears about 110° true, steer eastward, and anchor with la Gacholle light bearing 14° true, on the line dividing the *white* and *green* sectors, in about 6 fathoms water.

**Le Vieux Rhône.**—The coast from Pointe de Beauduc trends south-eastward and eastward, nearly 5 miles, to the mouth of Le Vieux Rhône, and is low and marshy, with several étangs. The entrance to Le Vieux Rhône is shallow, and only available for small coasting vessels. Some chimneys, and the ruined tower of Saint Genest, about 1½ miles inland, a Custom house on the western, and the old lighthouse on the eastern, side of the entrance to Le Vieux Rhône are the only noticeable marks.

**LIGHT.—Faraman or La Camargue.**—A light is exhibited from a white masonry tower, 127 feet high, situated about 1,300 yards, 24° true, from the old lighthouse (*Lat. 43° 21' N., Long. 4° 41' E.*) on the eastern side of the entrance to Le Vieux Rhône.

**Signal station.**—There is a semaphore about 1½ miles eastward of the lighthouse, and a quarter of a mile inland.

**Life-saving stations.**—A rocket apparatus is stationed at La Vignolle Custom house; a lifeboat, life-saving gun, and an aid station at Beauduc; and a lifeboat and life-saving gun at Faraman lighthouse.

**The coast** from Le Vieux Rhône continues eastward about 10 miles to the mouth of the south-east or main branch of Rivière du Rhône, and is low and sandy, backed by marsh land. The 5-fathom line is from about a half to 1½ miles from the beach; the use of the lead is essential in approaching the coast, which is the scene of many shipwrecks annually.

*Chart 3414, Approaches to Marseille.*

Eastward of Piémanson Custom house, situated 4½ miles eastward of Faraman lighthouse and half a mile inland, a line of trees runs along the coast to the mouth of Rivière du Rhône.

Shoal water extends three-quarters of a mile southward from the entrance to Grau du Roustan, situated 6½ miles eastward of Faraman lighthouse, and it is rapidly extending southward. Pass southward of the grau with the ruined tower on Cap Méjean open southward of Cap Couronne lighthouse. View at page 62.

*General charts 1780, 2158a, 449.*



*Chart 3414, Approaches to Marseille. Var. 11° 5' W.*

**La Rivière Rhône** rises in the Pennine Alps, traverses portions of Switzerland and France, and after a course of nearly 600 miles, enters the sea by several mouths. At Arles, a town on the  
 5 left bank, about 25 miles from the sea, the river divides into two branches, one flowing south-eastward, the other south-westward, together enclosing the alluvial island of Camargue. The south-east or main branch is again divided, a short distance above its mouth, by low marshy islets, between which vessels of light draught enter the  
 10 river. Le Rhône is full of sandbanks, which, owing to the rate of the current, are continually shifting, and it is not navigable by vessels of more than 2 feet draught. The current brings down a whitish sediment, which discolours the sea to a distance of some 6 miles from the mouths. La Tour Saint Louis (*Lat. 43° 23' N., Long. 4° 48' E.*)  
 15 was built, in 1737, 1½ miles from the sea; it is now 2½ miles from it. About three-quarters of a mile from the shore the fresh water of the river has been known to be 3 feet deep, and vessels have obtained fresh water from it.

Banks of muddy sand prolong the two river banks, and extend over  
 20 a mile south-eastward from the vegetation which borders the mouth of the river. The edges of the banks are very steep, shoaling suddenly from 5 fathoms to 3 feet and less. The banks are extending south-eastward about 50 yards annually. The shoals at the mouth of Le Rhône also extend north-eastward.

25 **Bar.**—The river is closed by a bar of sand, leaving only a narrow passage in which the depth of water varies, according to the sea, the wind, and the height of water in the river, from 4 to 6½ feet, and which shifts sometimes to the northern and sometimes to the southern part of the bar.

30 Within the bar, the channel of the river varies in position, but has a depth of not less than 16 feet to la Tour Saint Louis.

When rounding the shoals to enter Golfe de Foz do not bring Fort Bouc light-tower or light eastward of 35° true until the light-house on Saint Louis canal South jetty bears 298° true; this bearing  
 35 is the southern limit of visibility of the light.

From about 1½ miles inside the bar to Saint Louis, the low marshy banks of the river are supported by dams and embankments.

On the northern side of the river, from about one to 2 miles within the entrance, are They de la Balancelle, They de l'Annibal, and They  
 40 du Pegoulier, low sandy islets; about three-quarters of a mile westward of They du Pegoulier and 2½ miles from Saint Louis is a pilot flagstaff, a white house, and a few cottages.

The sea breaks heavily on the bar with winds from seaward.

*General charts 1805, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 5' W.*

**Signal.**—The pilots hoist a blue pendant half mast at the pilot flagstaff when the bar is impracticable, and right up when the bar is safe.

**Caution.**—As the sands at the mouth of Le Rhône often shift, 5 and low sandy islets form, entrance should not be attempted without a pilot.

**Discolouration of the water.**—On approaching the mouth of the river the discolouration of the water serves as a guide; at a moderate distance from the land the sea is whitish, becoming deep 10 yellow as the coast is neared. But if the wind is from seaward and strong enough to cause much sea, the fresh water is kept back in the river, or shaken up by the waves, so the discolouration is less apparent, and the lead should be used.

Vessels should not enter the discoloured water. 15

**Marks.**—La Tour Saint Louis, 92 feet high, square, and surmounted by a stone turret, on the north bank of the river, about 5 miles within the entrance; a large crane at Port Saint Louis; and some large buildings (flour mills), several stories high, on the north side of Canal Saint Louis and a little eastward of the port, 20 are conspicuous.

**Soundings.**—At 5 miles southward of the mouth of Le Rhône there are about 50 fathoms water, mud bottom; at 3 miles, 40 to 45 fathoms; at 1½ miles, 28 to 30 fathoms.

**Currents.**—The streams generally set southward, but with 25 southerly winds the currents set towards the coast and are dangerous.

**GOLFE DE FOZ (FOS)**, between the mouth of Le Rhône and Cap Couronne, is from 4 to 5 miles broad and 6 miles deep, with 33 fathoms water in the middle of the entrance, and 6 fathoms 1½ miles from the beach at its head; it is open to the southward. 30 Foz, a small town, stands on a little hillock, which appears isolated from seaward, on the south-western shore of Étang de l'Estomac, 8¼ miles north-westward of Cap Couronne. Between the mouth of Le Rhône and Foz town, the land is very low and marshy, with several étangs having two outlets to the sea. The head of the gulf 35 should not be approached within a mile.

**Anchorage** can be obtained anywhere at the head of the gulf, over half a mile from the shore, but the Plateau de roche du Grand Forté, about 2 miles westward of the square tower of Bouc, which has from 8 to 10 fathoms water, should be avoided; the plateau is now, 40 however, covered with mud.

The best anchorage is in Anse du Repos (*Lat.* 43° 24' N., *Long.* 4° 53' E.), off the entrance to Canal Saint Louis, in 5 fathoms, mud, with the

*General charts 1805, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

- southern mole lighthouse, bearing 250° true, distant about 7 cables; here vessels are safe as the holding ground is good, and although open to south-easterly winds there is less sea than in other parts of the gulf; small vessels anchor about a quarter of a mile northward of the lighthouse. Aigue Douce anchorage is on the eastern side of the gulf between the low and white Pointe de Beau Massais and Cap d'Aiguades, or d'Aigue Douce, on which is the old signal station of Bouc; here vessels anchor in about  $4\frac{1}{2}$  fathoms, sandy mud and weed, with the old signal station bearing between 135° and 158° true, avoiding a shoal with  $1\frac{1}{4}$  fathoms water, about 3 cables north-westward of Cap d'Aiguades. This anchorage should be quitted on south-westerly or westerly winds setting in, as the sea then becomes very heavy and it may not be possible to get under-way.

- 15 Canal and Port Saint Louis du Rhône.**—Canal Saint Louis, about 3 miles north-westward of the mouth of the river, through which vessels enter and leave Le Rhône, passes through salt lakes and marshy land, 263° true, towards la Tour Saint Louis, and is 3,718 yards long, 98 feet wide on floor, 207 feet wide at surface, and has a depth of  $19\frac{1}{2}$  feet. At Saint Louis it ends in a rectangular basin, 443 yards long and 330 yards wide, which communicates with Le Rhône by a lock, 175 yards long, 24 yards wide, and  $24\frac{1}{2}$  feet deep; the basin will receive vessels of 18 feet draught. The banks of the canal are protected by masonry  $4\frac{1}{2}$  feet above low-water level. The entrance is between two moles, the southern extending eastward, 1,640 yards; the northern mole is in an unfinished state; between the two a depth of  $19\frac{1}{2}$  feet is maintained. View at page 62.

- The dredged channel, with  $19\frac{1}{2}$  feet water, is along the south pier at a distance of 22 yards; la Tour Saint Louis, in line with the middle of the canal, leads through.

**LIGHT.**—A light is exhibited, at 43 feet above high water, from a brown iron turret, 43 feet high, on the outer end of the southern mole (*Lat. 43° 23' N., Long. 4° 52' E.*).

- Buoys.**—Three red buoys are moored at the eastern entrance to Canal Saint Louis, northward of the outer part of the southern mole; vessels of  $14\frac{3}{4}$  feet draught pass on either side of the outer buoy; the two inner buoys are left on the starboard hand entering.

**Anchorage.**—There is anchorage for vessels waiting to enter the canal about 100 to 150 yards northward of the outer buoy.

- 40 Pilotage.**—There are six pilots and one assistant at Canal Saint Louis pilot station; they pilot vessels from sea to Port Saint Louis du Rhône, by the Canal and by Le Rhône, and also direct the movement of vessels in the inner basins of Port Saint Louis.

*General charts 1805, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 0' N.*

**Pilotage** by the Canal, or by Le Rhône, from sea to Port Saint Louis du Rhône, and vice versâ, is charged as follows:—

By day (sunrise to sunset):—80 to 90 tons, 5fr. 50c.; 90 to 120 tons, 6fr.; 120 to 150 tons, 6fr. 50c.; and 0fr. 25c. for each ton exceeding 150 tons; at night (sunset to sunrise):—80 to 90 tons, 11fr.; 90 to 120 tons, 12fr.; 120 to 150 tons, 13fr.; and 0fr. 5c. for each ton exceeding 150 tons.

Vessels exempt from pilotage, if they accept the service of a pilot, pay:—By day: 10 to 30 tons, 4fr. 50c.; 30 to 60 tons, 5fr.; 60 to 80 tons, 5fr. 50c.; 80 to 100 tons, 6fr.; at night:—10 to 30 tons, 9fr.; 30 to 60 tons, 10fr.; 60 to 80 tons, 11fr.; 80 to 100 tons, 12fr.

The tariff by day or at night is according as the larger part of the pilotage is conducted by day or at night.

Each pilot is granted for every vessel, independently of the due paid for the tug, 3fr. 50c., or 7fr., according as the pilotage has taken place by day or at night.

Government vessels, French or foreign, pay, for entering or leaving, the pilotage due, whilst yachts only pay half the due fixed for merchant vessels.

Every time a pilot, in response to a signal from a vessel, passes a line joining the lighthouse and the outer end of the northern mole, the due is increased by one third.

Vessels requiring a pilot for Canal Saint Louis hoist at the foremast head, under the pilot flag, their national flag, house flag, or any other flag. The second flag is the special signal for calling a Canal pilot.

**Trade.**—The chief imports are coal, grain, oils, and phosphates, and the exports are cement, lime, grain, flour, oils, and zinc.

**Communications.**—There is a daily service of steamers from Saint Louis to Arles, a town about 20 miles up the river.

**Life-saving station.**—A whale boat is maintained in Port Saint Louis, and will be towed out to a vessel in distress. A rocket apparatus is kept at the Custom house.

*Plan, Port de Bouc, on chart 3414.*

**PORT DE BOUC**, nearly half a mile south-east of Cap d'Aiguades, is situated within Pointe de Lègue (*Lat. 43° 24' N., Long. 4° 59' E.*), which is low, with a mole curving southward and eastward about 2 cables from it; the port affords shelter for small vessels unable to reach Marseille during contrary winds; it is at the outlet of Étang de Berre, lying 3 miles north-eastward of the port. The shore of the gulf between Foz and Bouc is somewhat higher than that to the westward, and is rocky.

On the southern side of the entrance to the port is Ilot du Fort, the south-eastern side of which is connected to the shore by a sand spit

*General charts 1805, 1780, 2158a, 449.*

*Plan, Port de Bouc, on chart 3414. Var. 11° 0' W.*

- and bridge. On the north-west point of the islet is a fort and the white square Tour du Fort (*Lat. 43° 24' N., Long. 4° 59' E.*). The entrance to the port is one cable wide, but les Tasques, a rocky shoal, on which the sea breaks in bad weather, extends a cable southward from the elbow of the mole, and has from 2 to 3 fathoms water.

- Bouc village is about half a mile northward of the mole head, and just to the eastward of the village is the entrance to the canal leading to Arles, a coal wharf, and Bassin Aubran, 820 yards long and 120 yards wide, with a depth of 16 feet in the middle, but less towards the quays. On the north-west side of the port are the large workshops, and six slips for constructing large iron vessels, of the Société des Chantiers et Ateliers de Provence. In front of the slips there is a depth of 24 feet. The coal wharf on the south-western side of the entrance to Bassin Aubran has less than 16 feet water on its eastern side. Canal d'Arles has depths of less than 6 feet.

**Depths.**—There is a depth of  $3\frac{3}{4}$  fathoms in the entrance. Vessels of 20 feet draught can be berthed in the north-western part of the port, and of 21 feet in the south-western part.

- LIGHTS.**—A light is exhibited, at 95 feet above high water, from a white round turret, on the large white square Tour du Fort, 89 feet high, on the south side of the entrance.

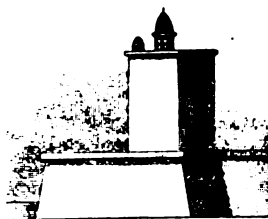
- A light is exhibited, at 49 feet above high water, from a white round tower, 40 feet high, on the head of the mole, on the north side of the entrance to Bouc.

- Buoys.**—Two white buoys, moored in  $4\frac{1}{2}$  and  $3\frac{3}{4}$  fathoms, mark the direction of the entrance; a white buoy in  $2\frac{3}{4}$  fathoms marks the edge of the east bank within the port; and a white buoy marks the west side of the entrance to Bassin Aubran and Canal Maritime de Martigues.

- Beacons.**—Two mast beacons on the north side of Port de Bouc in line mark the east side of the channel leading to Canal de Martigues; the rear beacon is on shore northward of Bassin Aubran, and the front beacon on the eastern mole head of that basin. The mole lighthouse and a black beacon on the inner side of the round point of the mole give the same alignment.

**Pilotage.**—The pilots of Marseille perform the pilotage service at Port de Bouc, and a pilot boat is stationed at Bouc. The rates of pilotage are the same as at Marseille; *see* page 84.

*General charts 1805, 1780, 2158a, 449.*



Fort de Bouc lighthouse.



Mole head lighthouse.

*Plan, Port de Bouc, on chart 3414. Var. 11° 0' W.*

Vessels bound to Marseille and seeking shelter at Port de Bouc pay the full rate for entering and leaving, but half rates for entering and leaving Marseille, and vessels from Marseille seeking shelter at Port de Bouc pay half rates for entering and leaving the latter port. 5

**Sea level.**—A rise of 2 feet above the normal level has been observed in October, November, and December, and a fall of  $1\frac{1}{4}$  feet in February.

**Directions.**—Mont Sainte Victoire, 3,182 feet high, which appears isolated, bears 73° true, nearly 30 miles, from the entrance to Bouc. To enter the port, steer in with Notre Dame de Miséricorde chapel (*Lat. 43° 25' N., Long. 5° 3' E.*), on a hill, 351 feet high, about 3 miles eastward of Bouc village, just open northward of Fort de Bouc light-tower, until about a cable distant, to clear les Tasques; then pass on either side of the two white buoys in the entrance, and leave the inner white buoy on the starboard hand, when turn northward into the port. 10 15

For Canal de Martigues, when in the port, keep the rear beacon on the shore of Bassin Aubran well open westward of the front beacon, until Chauvet old mill is open its own width northward of the Custom house eastward of Bassin Aubran. With north-east and easterly winds, especially in February and May, a strong current sets out of the port from Étang de Berre. A vessel unable to enter during strong off-shore winds can anchor in Aigue Douce anchorage, page 66. 20

**Life-saving station.**—A rocket apparatus is stationed at Bouc Custom house. 25

**Supplies** and water can be obtained from Martigues.

**Communication.**—The village of Bouc has railway communication with Miramas, on the Paris, Lyons, and Mediterranean railway.

*Chart 3414, Approaches to Marseille.* 30

**Canal from Bouc to Martigues.**—The ship canal from Bouc to Martigues, a distance of about 3 miles, has been excavated in Étang de Caronte; it is 40 feet wide at the bottom, 90 feet at the surface, and has a depth of 20 feet.

Port de Martigues, on the south-western shore of Étang de Berre and at the eastern end of the ship canal, is available for vessels 230 feet long, with a draught of 18 feet. Two passes lead from the port to the étang; both have 20 feet water, but the southern is the better for a long vessel; the channel is marked by white buoys. A swing-bridge opens for the passage of vessels. 35 40

There is a railway from Martigues to Pas des Lanciers on the Paris, Lyons, and Mediterranean railway.

**Étang de Berre** is 10 miles long north-west and south-east, and about 5 miles broad; there is a depth of 5 fathoms in the southern

*General charts 3414, 1805, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

and middle parts, but it decreases towards Étang de Saint Chamas, in the northern part, and Étang de Vaine, in the eastern part. The two principal ports of the lake are Saint Chamas, on the northern  
 5 side, and Berre, on the eastern side; Saint Chamas is available for vessels of 9 feet draught and Berre of 8 feet.

*Plan, Port de Bouc, on chart 3414.*

**The coast** from Port de Bouc trends south-south-eastward 5 miles to Cap Couronne (*Lat. 43° 20' N., Long. 5° 3' E.*); the  
 10 land is undulating, and much higher than that to the north-westward. Port de Ponteau, 2 miles south-eastward of Bouc, is shoal; it was formerly frequented by coasting vessels, but is now abandoned; there are the ruins of a large factory at its head; midway between Port de Bouc and Cap Couronne are Anses des Laurons and de Bonniieu, both  
 15 small and used by fishing boats in fine weather. The coast is bordered by rocky shoals, but about three-quarters of a mile off it there are from 11 to 25 fathoms water.

*Chart 3414, Approaches to Marseille.*

Mont Tabouret, 485 feet high, is 2½ miles north-eastward of Cap  
 20 Couronne. On the west side of the cape are Port de Carro and Anse de Verdon, separated by a rocky point; Carro village is on the north shore of Port de Carro (view at page 62). There is a small pier at the entrance; La Couronne village, with a pointed steeple and some mills, is at the head of Anse de Verdon, and both the port and anse  
 25 are used by coasting vessels during off-shore winds.

**Light.**—A light is exhibited from a white iron column, 19 feet high, on the end of the pier in Port de Carro.

**Lifeboat.**—A lifeboat is stationed at the head of Port de Carro.

**Ragues d'Arnette and de Carro**, a mile westward of Cap  
 30 Couronne, and about half a mile from the coast, have from 1½ to 2½ fathoms water; the sea nearly always breaks on the shoals.

**Clearing marks.**—Port de Bouc mole lighthouse open westward of Fort de Bouc leads westward of Les Ragues d'Arnette and de Carro, and Château Gabriel, on a hill westward of Sausset, in line  
 35 with Cap Couronne lighthouse, 79° true, leads southward.

The shoal banks off the coast between Bouc and Cap Couronne are covered by the *green* sector of Tour du Fort light.

**Cap Couronne**, the eastern entrance point of Golfe de Foz, is low, and projects about a quarter of a mile to the southward; a spit  
 40 extends half a cable off it. View at page 62.

**LIGHT.**—A light is exhibited, at 55 feet above high water, from a square white turret, 44 feet high, with a white dwelling, on the extreme of Cap Couronne.

*General charts 3414, 1805, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

**Signal station.**—Half a mile northward of Cap Couronne lighthouse is a semaphore, white house, and tower.

**Measured distance.**—A measured distance in two sections, for testing the speed of vessels, extends eastward from off Cap Couronne to northward of the west end of Ile Ratoneau; the dome of Marseille cathedral seen between the two spires of the Protestant church (Saint Vincent de Paul), 94° true, is the leading mark. 5

The western limit is the alignment of la Couronne church steeple with Cap Couronne lighthouse. The eastern limit is the alignment of two triangular pyramidal beacons, painted white with a black horizontal band, one on Pointe de Brégantin, Ile Ratoneau, and the other on Pointe de Carapègue, Ile de Pomègues, the flagstaff on the summit, 256 feet, of the latter island, being also in line. The division of the sections is the alignment of the north-east corner of Château de Carry, or Château Jourde (a large house with red roof, the highest in Carry village), with a truncated conical turret beacon, painted black and white in horizontal bands, and surmounted by a white cylinder, on the western entrance point of Port de Carry. 15

The length of the western section is 26,489 feet, and of the eastern section 38,381 feet, the total length being 64,870 feet. 20

The depth of water on the measured distance varies from 14 to 42 fathoms.

**The coast** from Cap Couronne trends eastward nearly 8 miles to Cap Méjean; it is low and arid, rising gradually, and between Sausset and Port de Rouet is covered with pine trees; eastward of Carry it is a line of broken and irregular cliffs, which attains its greatest height at Cap Méjean. Eastward to the vicinity of Cap Méjean, the coast is bordered with rocks which extend about a quarter of a mile off it; from this distance the bottom is weed and grey sand to half a mile off-shore; it is then muddy sand, and at the distance of about one mile the depths are over 22 fathoms, mud bottom. The depths rapidly increase towards Cap Méjean. 30

**Ile Aragon** (*Lat. 43° 20' N., Long. 5° 5' E.*), 1½ miles eastward of Cap Couronne, and 1¼ cables from the coast, is low and black; the passage inside it should not be used for navigation. A patch with 2 fathoms water lies about a cable south-westward of the islet, and there is a depth of 9 fathoms about 1½ cables southward of it. Midway between the islet and Cap Couronne is Port de Sainte Croix, a little bay used by small vessels with off-shore winds. Calanque du Petit Nid and Anse de Boumandariel, two small bays, are separated by Ile Aragon; in the latter of these bays small vessels obtain shelter with north-westerly winds, and the holding ground is good. 40

*General charts 1805, 1780, 2158a, 449.*



*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

- Port de Sausset,  $1\frac{1}{2}$  miles eastward of Île Aragnon, is frequented by fishing boats, which shelter under a small jetty. There are a number of houses and villas at the head of the port, and Château Gabriel, westward of it, is surmounted by a bell-tower.

**Tunny fishery.**—Tunny nets are sometimes laid out off Île Aragnon.

- Port de Carry**, 2 miles eastward of Sausset, is suitable for small vessels; the entrance lies between the clifly Pointe du Mouton, on which is an old mill (beacon, page 71), and which is bordered by low rocks, on the west, and a shoal, on which is a red masonry beacon, surmounted by a red triangle on a pillar, 12 feet high, named L'Esteo, or L'Âne, on the east. There is a boat harbour inside a rocky mole about 100 yards long, at the head of the port. View at this page.

- Anchorage.**—There is anchorage on the coast between Cap Couronne and Port de Carry, about half a mile off-shore, vessels at anchor being ready to weigh on winds setting in from seaward. The most frequented anchorage is about a quarter of a mile southward of the entrance to Port de Carry, where large vessels shelter from north-westerly winds in 6 to 8 fathoms, weed. Do not anchor on Plaine de Carry, a rocky bank, with 13 fathoms least water, about one mile southward of Port de Carry.

**Pilots.**—Port de Carry is a station for Marseille pilots; two pilot boats are stationed here. See page 84.

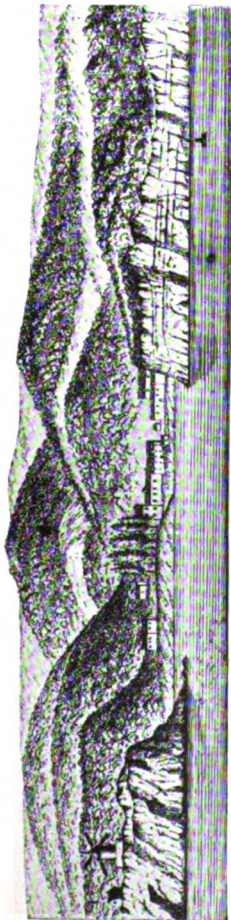
- Life-saving station.**—A rocket apparatus is stationed at Carry Custom house.

- Cap Méjean**,  $7\frac{1}{2}$  miles eastward of Cap Couronne, is 500 feet high, steep, bare, reddish in colour, and on its summit are the ruins of an old watch-tower. Between Carry and Cap Méjean are Port de Rouet and Port de Gignac, used by fishing or small vessels with off-shore winds. Port de Méjean (*Lat. 43° 20' N., Long. 5° 13' E.*), between the cape and Pointe de la Loude, which has several rocks off it, is  $1\frac{1}{2}$  cables in length, with depths of from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  fathoms, but it is sheltered except from winds between south-west and south-east, which raise a heavy sea and make the entrance very dangerous.

- Tunny fishery.**—Tunny nets are generally laid out from June to November from the west point of Port de Gignac, about  $1\frac{1}{2}$  miles westward of Cap Méjean, and extend about 4 cables seaward. Rocher Arapègue, open southward of Cap Méjean, leads southward of the nets.

**Life-saving station.**—A rocket apparatus is stationed at Méjean Custom house.

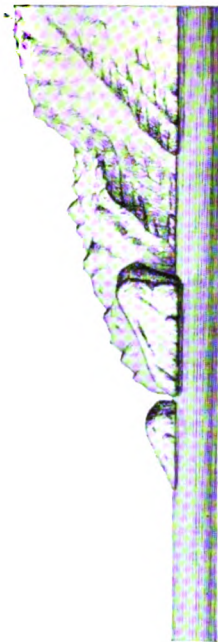
*General charts 1805, 1780, 2158a, 449.*



Mill bearing 3420 true,  
distant about one mile.

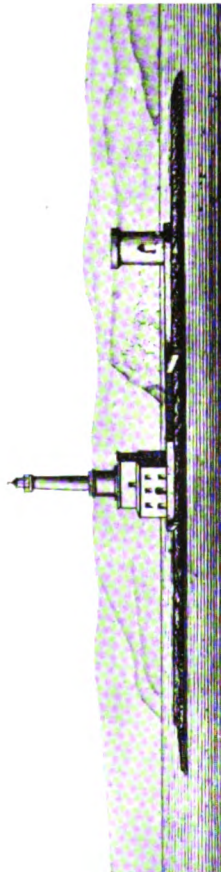
*L'Estee beacon.*

Port de Carry.



*Rocher Arapèque.  
Rocher le Moulon.*

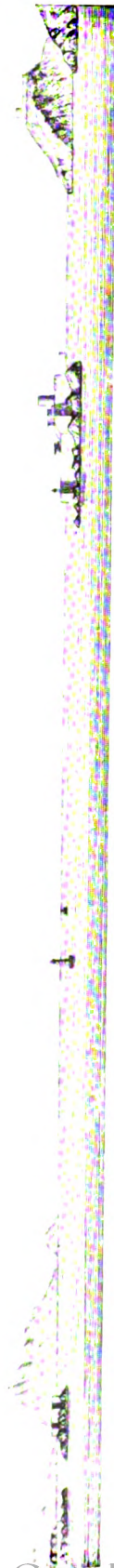
Rocher Arapèque open southward of Le Moulon.



*Lighthouse.*

*Old Tower.*

Île de Planier, from one mile to the southward.



Pointe de la  
Cadière.

Fort. Ile Triboulen.

Le Canoubier,  
Soudaras  
light beacon.

*Lighthouse,  
Ile d'If, lighthouse,  
about 220° true, distant 1½ miles.*

*Ile de Pomigues.*

From Rade de Marseille.



*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

**Baie de l'Estaque** extends northward  $1\frac{3}{4}$  miles between Cap Méjean (*Lat. 43° 20' N., Long. 5° 14' E.*) and Cap Janet,  $5\frac{1}{2}$  mile-eastward. The shore from Cap Méjean trends east-north-eastward 3 miles to Pointe de la Corbière, which is white and has a battery on it, and is clear at the distance of 2 cables. 5

Rocher Arapègue (l'Élevine), close off-shore half a mile eastward of Cap Méjean, is 75 feet high, and covered with vegetation; the coast and Rocher le Moulon, a quarter of a mile eastward of the islet, are white and bare. Port de Niolon, 8 cables north-eastward of Rocher le Moulon, and Calanque de la Veste,  $1\frac{1}{4}$  cables further north-eastward, are used by fishing boats. 10

**Tunny fishery.**—Tunny nets (Madrague de Niolon) are laid out from June to October off Pointe Figuerolle, which is about 4 cables north-eastward of Port de Niolon, and this point should not be approached to within half a mile. Rocher Arapègue open southward of Rocher le Moulon leads southward of the nets. View at page 72. 15

*Plan 150, Marseille.*

**The shore** of the bay from Pointe de la Corbière trends eastward about half a mile to L'Estaque village, and becomes low; it then turns south-eastward three-quarters of a mile to Pointe de Mourepiane (Mourrepiane), the cliffs of which, about 50 feet high, are the base of Séon hills; the shore then continues south-eastward  $1\frac{1}{4}$  miles to Cap Janet. 20

**Rade de l'Estaque**, off the coast between Pointe de la Corbière and L'Estaque village, is much frequented as an anchorage by sailing vessels; though open southward and south-westward, the high land deadens the on-shore winds. Vessels unable to enter the port of Marseille can shelter here. The best position is about 4 cables southward of Pointe de la Corbière, in 8 fathoms water, with Niolon battery in line with Rocher le Moulon, and Notre Dame de la Garde in line with the old Château du Pharo, Marseille. 25 30

**Port de la Lave.—Canal de Marseille au Rhône.**—About 4 cables eastward of Pointe de la Corbière is the commencement of the breakwater, which shelters Canal de Marseille au Rhône; it extends, from one to 2 cables off-shore, south-eastward to Cap Janet, and there are three entrances—one off Port de la Lave, one southward of Port de l'Estaque, and the third off Pointe de Mourepiane. The canal is to be from 150 to 200 feet wide, and 8 feet deep. 35

Inside the breakwater are the small ports, within moles, of La Lave, L'Estaque, Fontaine des Tuiles (Anse Saumaty), and Mourepiane. Anse Martin lies between Pointe de Mourepiane and Saut de Marrot, and extensive works are projected in it. 40

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

**LIGHTS.—Port de la Lave.**—A light is exhibited, at 39 feet above high water, from a black metal apparatus on a masonry base, 33 feet high, on the eastern end of the breakwater at the entrance to the port.

**Port de l'Estaque.**—A light is exhibited, at 29 feet above high water, from a black metal turret on a stone base, 25 feet high, on the south-eastern end of the breakwater southward of Port de l'Estaque.

**Saut de Marrot.**—A light is exhibited, at 108 feet above high water, from a round tower with a dwelling, 19 feet high, on the cliffs of Saut de Marrot.

**Life-saving station.**—A rocket apparatus is stationed at Port de l'Estaque.

**Cap Janet** (*Lat. 43° 20' N., Long. 5° 21' E.*) is a yellowish point about 131 feet high; on its summit are a chapel and a glass factory with a chimney, partially obscured by trees; about 4 cables north-eastward is a large seminary.

**RADE DE MARSEILLE** extends between Cap Janet and Pointe d'Endoume,  $3\frac{1}{4}$  miles southward, westward of which are *Iles d'If, Ratoneau, and de Pomègues*. These islands, known as *Iles de Marseille*, shelter the roads from the southward. View at page 72.

**Anchorage.**—The roads are open westward, and the anchorage is bad, and sometimes dangerous with westerly winds, which cause a heavy sea. North-westerly winds are sometimes very violent, especially from May to September. The anchorage should be rarely used, except with easterly winds, and even then in the bad season, from October to April, it is necessary to look out for a change of wind, which occurs suddenly. Generally, vessels should not anchor here with easterly winds when the sky is overcast.

A good position is about half a mile west-north-westward of Joliette lighthouse, in about 16 fathoms water.

**Ports de Marseille.**—The ports of Marseille, which commence at Cap Janet, extend southward to la Pointe du Pharo, and are situated within a breakwater about  $2\frac{1}{2}$  miles long.

**Depths.**—The total length of quays is 16,412 yards, of which 7,327 yards are available to vessels of  $29\frac{1}{2}$  feet draught at a distance of from 26 to 32 feet off the quay. Vessels of any size can be berthed in Bassin de la Pinède and Bassin National, at a distance of less than 40 feet from the quays, which vessels of  $29\frac{1}{2}$  feet and less draught can go alongside.

**Avant port Nord** (Bassin de la Madrague) is under construction; it is to be 1,600 feet long on the land side, 2,400 feet on the off

*General charts 3411, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

side, 1,000 feet broad, and 40 feet deep. Passe du Cap Janet, the entrance, between Traverses du Cap Janet, is to be 330 feet wide, and 60 feet deep. The basin will have a depth of 39 feet along-side the quay, and vessels 820 feet long will be able to be berthed. 5

Eastward of Avant port Nord is Bassin de Remisage, under construction; here will be some dry docks, and an entrance into Canal de Marseille au Rhône.

**Bassin de la Pinède**, situated between Cap Pinède and the outer breakwater, and Traverses de la Madrague and de la Pinède, is 2,000 feet long and 1,600 feet broad, with depths of from 27 to 66 feet. Passe de la Madrague, the northern entrance to the basin, through Traverses de la Madrague, and Passe de la Pinède, the southern entrance, through Traverses de la Pinède, are both 344 feet wide, and from 46 to 52 feet deep. 15

Moles E and F, 785 feet and 395 feet long, respectively, extend at right angles to the coast into the basin, and between Traverse de la Madrague and Mole F is Bassin au Pétrole.

Cap Pinède, 1,300 yards south-south-eastward of Cap Janet, is a reddish hill, 131 feet high; its southern side is steep and bare. 20

**Bassin National**, southward of Bassin de la Pinède, is 3,035 feet long, 1,685 feet broad, with an area of 100 acres, and depths of from 19 to 65 feet. It communicates through a channel 91 feet wide, and 26½ feet deep, with Bassin des Réparations à flot to the eastward, leading to six dry docks, capable of accommodating large vessels. 25

Mole B, 426 feet long, and Moles C and D, each 788 feet long, extend at right angles to the eastern side of the basin. There is a coal-ing wharf between Mole D and Traverse de la Pinède; British colliers discharge here. Bassin National is separated from Bassin de la Gare Maritime, to the southward, by Traverse de l'Abattoir, the two arms of which are joined by a swing-bridge turning on its centre. The two Passes de l'Abattoir, thus formed, are each 92 feet wide, and have a depth of 31 feet. 30

**Bassin de la Gare Maritime** (*Lat. 43° 19' N., Long. 5° 22' E.*), southward of Bassin National, is 1,200 feet long, 1,716 feet broad, with an area of 41 acres, and depths of from 19 to 49 feet. Mole A, 800 feet long, extends at right angles to the eastern side of the basin. The basin is separated from Basin d'Arenc by the Traverse de l'Arenc, which is spanned by a swing-bridge. 35

**Bassins d'Arenc and du Lazaret**, southward of Bassin de la Gare Maritime, are together 2,460 feet long and from 755 to 1,578 feet broad, with an area of 39 acres, and depths of from 23 to

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

40 feet; a railway goods depôt, large warehouses, and bonded stores line the quays.

- 5 **Môle du Lazaret** extends 850 feet at right angles to the shore of **Bassin du Lazaret**, on the southern side of **Bassin d'Arenc**.

**Bassin du Lazaret** is separated from **Bassin de la Joliette** by **Traverse de la Joliette**, on which is the chief port office; **Passe de la Joliette**, through the traverse, is 69 feet wide, with a depth of 28 feet, and is crossed by two swing-bridges.

- 10 **Bassin de la Joliette**, between **Traverse de la Joliette** and **Traverse de la Major**, is 1,623 feet long, about 1,287 feet broad, with an area of 48 acres, and has depths of from 15 to 30 feet water. The basin is chiefly appropriated to steam vessels, and is connected with **Vieux port** by a canal running eastward of **Fort Saint Jean**, with  
15 a depth of 16 feet water, which is adapted for a dry dock.

**Traverse de la Major** separates **Port de la Joliette** from **Avant port Sud**; **Passe de la Major**, through the traverse, is 230 feet wide, with a depth of 26 feet.

- 20 The basins are surrounded by quays, upon some of which are ranges of warehouses built of stone and iron, and fitted with hydraulic lifts.

**Works.**—The existing basins are to be deepened to 29½ feet.

- Avant port Sud** extends from **Traverse de la Major** southward to **Pointe du Pharo**, and is partly sheltered from the westward by the Outer breakwater; it has depths of from 3¼ to 5 fathoms. **Bassin**  
25 **du Pharo**, between **Pointe du Pharo** and **Pointe Tête de Maure**, about a cable to the eastward, is shoal; there is a building slip at its head.

- Fort Saint Jean**, on the south-eastern side of **Avant port Sud**, and on the northern entrance point of **Vieux port** has some rocks close  
30 off it.

- Banc des Ponts**, on the eastern side of the port, extends northward from **Fort Saint Jean** and along the eastern quay of **Avant port Sud**. At 250 yards northward of **Fort Saint Jean** light-tower, and 200 yards off-shore, is a depth of 2¼ fathoms; the sea breaks on the bank during  
35 strong westerly winds.

**Batteries.**—There is a battery on the breakwater, at the north end of **Bassin National**; two on the breakwater abreast **Bassin de la Gare Maritime**; and two on the breakwater abreast **Bassin de la Joliette**.

- 40 **Vieux port** (*Lat. 43° 18' N., Long. 5° 22' E.*) is a natural basin, extending eastward 2,920 feet into the middle of the city, with an average breadth of 982 feet, and an area of 65 acres; the depth varies from about 21 feet in the entrance to 13 feet near the quays. The entrance is between **Fort Saint Jean**, on which is a high

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

round tower, and Pointe Tête de Maure, on which is the old Château du Pharo; the inner part of the entrance between the square tower of Fort Saint Jean and Fort Saint Nicholas, to the southward, is about 200 yards wide. The port is chiefly reserved for sailing vessels of less than 18 feet draught, yachts, and tugs. It is surrounded on all sides by spacious quays.

A transporter bridge, 164 feet high, crosses the entrance to Vieux port, and vessels with masts more than 160 feet high cannot enter.

On the south side, just within the entrance, is a careening basin, and at the east extreme of the south quay are two entrances to a canal spanned by swing-bridges; here small craft and barges discharge.

Vessels make fast to the quays to load and discharge cargo, those awaiting their turn are moored in tiers, leaving a passage in the middle, from the entrance to Quai de la Canebière.

The entrance to Vieux port being open north-westward, strong winds from that direction make it difficult for even steam vessels to go out.

**LIGHTS.—Avant port Nord.**—A light is exhibited from a black reservoir, surmounted by a lantern, on the western end of the eastern arm of Traverse du Cap Janet (*Lat. 43° 20' N., Long. 5° 21' E.*).

**Breakwater.**—A light is exhibited from a masonry turret surmounted by a red reservoir and a lantern, on the northern end of the completed portion of the breakwater.

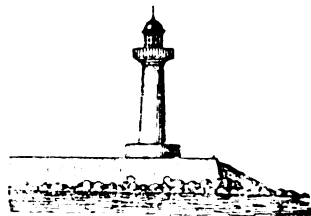
**Passe de la Madrague.**—A light is exhibited from a lantern, surmounting a grey reservoir, on the north-eastern extreme of the western side of the pass, and also from a similar structure on the north-west extreme of the eastern side of the pass.

**Passe de la Pinède.**—A light is exhibited from a grey iron turret, 22 feet high, on each side of the pass.

**Passes de l'Abattoir.**—A light is exhibited from each side of the pass, and two lights from the centre pier of the swing-bridge. Vessels going either northward through the eastern channel, or southward through the western channel, see two lights, one on the bridge, the other on the wharf, *white* when the pass is closed, *red* when it is clear.

**Passe de la Major.**—A light is exhibited from a grey iron turret, 21 feet high, on each side of the pass.

**Joliette.**—A light is exhibited, at 73 feet above high water, from a white round tower, 77 feet high, on the south extremity of the breakwater.



Joliette lighthouse.

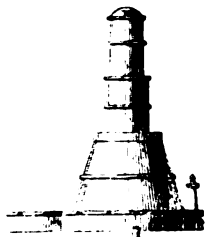
*General charts 3414, 1805, 2607, 1780, 2158a, 449.*



*Plan 150, Marseille. Var. 11° 0' W.*

**Fort Saint Jean.** — A light is exhibited from a white circular turret, 19 feet high, at the foot of Tour du Fort Saint Jean, on the north side of the entrance to Vieux port.

**Pointe du Pharo.**—A light is exhibited from a white cylindrical masonry tower, 47 feet high, on Pointe du Pharo.



Tour du Fort Saint Jean and lighthouse.

**Tête de Maure.**—A light is exhibited from a white turret, 21 feet high, with main building, on Pointe Tête de Maure, on the south side of the entrance to Vieux port, and about  $1\frac{1}{2}$  cables westward of Fort Saint Jean, on the opposite side of the entrance.



Tête de Maure lighthouse.

**Light-buoys.**—A red light-buoy, exhibiting a *green fixed* light, is moored about half a cable from the northern end of the breakwater extension on the outer side of Bassin de la Madrague (*Lat. 43° 20' N., Long. 5° 21' E.*); it is moved north-westward as the work progresses.

A red light-buoy, exhibiting a *green fixed* light, marks the western side, and a black light-buoy, exhibiting a *red fixed* light, the eastern side, of the north approach to Passe du Cap Janet. The buoys are provisional, depending on the works in progress.

**Buoys.**—In Avant port Sud is a white mooring buoy, in  $4\frac{1}{4}$  fathoms, 300 yards southward of Joliette light-tower; it marks the western edge of Banc des Ponts, and is left on the starboard hand entering Port de la Joliette, and on the port hand entering Vieux port.

Three white mooring buoys lie southward of the eastern arm of Traverse de la Major, and are left on the starboard hand entering Port de la Joliette.

Four white mooring buoys lie in Vieux port; two are off the Custom house, and two off the Careening basin.

**Beacon.**—Roche Mangevin, lying close westward of Fort Saint Jean, is marked by a black cylindrical masonry beacon, surmounted by a black cylinder, 10 feet high.

**Marseille.—South approach.**—The coast from Pointe du Pharo trends south-westward about 8 cables to Pointe d'Endoume: it is high, rugged, and covered with numerous buildings, especially in the small Anse des Catalans, about a quarter of a mile southward of Pointe du Pharo.

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

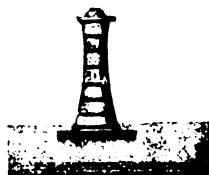
*Plan 150, Marseille. Var. 11° 0' W.*

**Life-saving station.**—A rocket apparatus is stationed in Anse Malmousque, south-eastward of Les Pendus.

**POINTE D'ENDOUME** is low, projecting, and has a battery on it; one cable northward from it are Les Pendus, three low rocks. 5

**Les Canoubier and Sourdaras.**—The north-eastern extreme of this shoal lies 3 cables west-north-westward of Pointe d'Endoume, and it extends about  $1\frac{1}{4}$  cables south-westward, with depths of from three-quarters to one fathom. Between the bank and Ile d'If there are depths of from 7 to 17 fathoms, sand and weeds; in the channel between it and Cap de Croix from 9 to 17 fathoms; and between it and Pointe d'Endoume from 6 to 8 fathoms. 10

**Beacons.**—Sourdaras light-beacon, on the south-western end of the shoal, is a masonry tower, painted black and white in horizontal stripes, and surmounted by a lantern 42 feet high.



15

Tourelle du Canoubier (*Lat. 43° 17' N., Long. 5° 20' E.*), on the north-east end of the shoal, is round, 49 feet high, and painted red and white in horizontal stripes, with the name "Canoubier." 20

**Mont Gardlaban**, 10 miles east-north-eastward of Pointe d'Endoume, is 1,952 feet high, and, on easterly bearings, has the shape of a helmet.

**Iles d'Endoume**, from one to  $2\frac{1}{2}$  cables south-westward of Pointe d'Endoume, are two in number; they are small, low, the southern having a fort on it, and separated by a passage half a cable wide, with less than 6 feet water, rocky bottom. *Écueil des Cent Francs*, a rock, awash, lies about 50 yards westward of the southern islet. The channel between the islets and the main is one cable wide, and is used by small vessels of less than 16 feet draught. 30

**Roches Tarantan**, 2 to 3 cables westward of Iles d'Endoume, are three patches with 5,  $5\frac{1}{2}$ , and 6 fathoms water, respectively, and from  $5\frac{1}{2}$  to 9 fathoms between them and the islets. Do not anchor between Iles d'Endoume and Ile d'If.

**Rade d'Endoume.**—Vessels unable to enter Marseille on account of strong north-westerly winds can anchor southward of Iles d'Endoume, in about 7 fathoms, sand and weeds, avoiding the swinging buoys. 35

Large vessels anchor south-south-westward of Iles d'Endoume, in from 12 to 14 fathoms, sand and weeds, with Ratoneau hospital open southward of Donjon d'If and Pointe de la Cadière in line with the eastern extreme of Iles d'Endoume. 40

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

To avoid the telegraph cable do not anchor with Pomègues semaphore bearing northward of 270° true.

- Buoys.**—Five buoys, for swinging vessels to adjust compasses, are moored in the roads, the central buoy being about 2 cables south-eastward of the battery on the south Île d'Endoume; the other four buoys are each about 600 feet from the central buoy.

- Île and Château d'If.**—Île d'If, 7 cables westward of Îles d'Endoume, is 350 yards long east-north-east and west-south-west, with a greatest breadth of 180 yards; it is of moderate height, and covered with fortifications, on the summit of which is a large circular donjon. View at page 72. The channel between the islet and the south-east coast of Île Ratoneau is  $2\frac{1}{4}$  cables wide, with 7 to 8 fathoms water. The north coast is bordered by shallow water, there being a depth of 4 fathoms at the distance of a cable; Le Rocher Mourgon is close to the east end of the islet. Landing can be effected westward of the lighthouse, on the north or south coast, according to the direction of the wind.

- Light.**—A light is exhibited, at 69 feet above high water, from a white circular turret, 36 feet high, on the east end of Île d'If.

- ÎLE RATONEAU.**—Cap de Croix, the east end of the island, is  $3\frac{1}{2}$  cables northward of Île d'If, and the island, is  $1\frac{1}{2}$  miles long east and west; its coasts are very irregular, with several deep but narrow coves and projecting points. On Cap de Croix is a battery, and on the summit of the island, 292 feet high, 6 cables from Cap de Croix, is Fort Ratoneau, which is conspicuous. On the north side of the island are Havre de Morgiret, Port de Banc, and Port l'Eoube, open westward and north-westward, and used occasionally by fishing boats; there are also two coves at the eastern end of the island open south-eastward, but suitable for small vessels. Port Saint Estève, the western one, has a large quarantine hospital on its east side. A rock, awash, lies close off Pointe de Brégantin, the west extreme of Ratoneau; Le Grand-Salaman, 23 feet high, lies  $1\frac{1}{4}$  cables northward of the point, and is connected to the shore by a reef. Les Eglaudes, 42 feet high, lie  $1\frac{3}{4}$  cables farther eastward, and a reef extends half a cable north-westward from them, with 9 fathoms close to.

- Beacon.**—A white triangular pyramidal beacon, with a black band, stands on Pointe de Brégantin, and is a mark for the measured distance, page 71.

- flot Tiboulén** (*Lat. 43° 17' N., Long. 5° 17' E.*), nearly 2 cables westward of Pointe de Brégantin, is about a cable long, north-east and south-west; a rocky patch with 5 fathoms water, lies about 70 yards

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

eastward of it, and between the patch and the rock off Pointe de Brégantin are depths of from 10 to 12 fathoms.

**Ribolles anchorage.**—Temporary anchorage can be obtained with southerly winds in 19 fathoms water north-westward of Cap de Croix, with Le Rocher Mourgon in line with the cape and Port l'Eoube well open. There is also temporary anchorage in about 7 fathoms water, sand and weed bottom, about a cable south-eastward of Pointe Escourbidon, a quarter of a mile south-westward of Cap de Croix; there are some mooring posts on Pointe Escourbidon.

**ÎLE DE POMÈGUES**, about  $1\frac{1}{2}$  cables southward of Île Ratoneau, is  $1\frac{1}{4}$  miles long north-east and south-west, and 2 cables broad; it is 282 feet high, rocky and arid, and its coasts are irregular, with numerous coves and projecting points; Doriou, the eastern point, has a battery on it. Port de Pomègues, near the middle of the south-east side, is a cove open eastward, half a cable wide and  $1\frac{1}{2}$  cables deep, with 3 to  $1\frac{1}{4}$  fathoms water; La Roche de la Cheminée, with one fathom water, lies on the north side of the entrance, and there is a white warping buoy off the southern entrance point. On the north-west side of the island there are two rocks within about half a cable from the shore. Fort de Pomègues, 282 feet above high water, near the east end of the island, is conspicuous.

**Signal station.**—There is a semaphore, a white house and tower, 36 feet high, and 282 feet above high water, situated  $2\frac{1}{2}$  cables south-eastward from the beacon on Pointe de Carapègue, on the north-west coast of the island. It is a Lloyd's signal station. There is a carriage road between the signal station and Port du Frioul.

**Beacon.**—A white triangular wall, with a black band, on Pointe de Carapègue (*Lat. 43° 16' N., Long. 5° 17' E.*), and a flagstaff on the south-west summit, 256 feet high, of the island, about 2 cables southward of it, are marks for the measured distance, page 71.

**PORT DU FRIOUL.**—Îles Ratoneau and de Pomègues are about 2 cables apart, and are connected by a mole on the eastern side of which is Port du Frioul; a mole projects about 350 yards south-westward from Île Ratoneau, about  $4\frac{1}{2}$  cables eastward of the connecting mole, leaving an entrance between it and Pomègues, about 186 yards wide; this mole protects the port from the swell caused by south-easterly winds. The area thus enclosed is about  $3\frac{1}{2}$  cables long and  $1\frac{1}{2}$  cables wide, with depths of from 4 to 6 fathoms, sand and weeds. On both sides of the port are barracks, and here vessels perform quarantine.

**LIGHT.**—A light is exhibited, at 32 feet above high water, from a white circular stone turret, 36 feet high, situated on the extremity of the eastern mole of Port du Frioul.

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

**Anchorage.—Buoy.**—The usual anchorage is in the western part of the port, with the stern secured to the mole; it is necessary, as the holding ground is bad, to have about 100 fathoms of cable out  
5 on the anchor. One cable north-westward of the light-turret is a white buoy, and its moorings must be avoided when anchoring.

**Directions.**—From the southward pass close off Pointe Doriou, and then steer for the light-turret until an old sentry box at the head of two sets of landing steps is just open southward flot Tiboulen, which  
10 mark leads in northward of Banc de la Plageole.

**Basse St. Estève**, with  $1\frac{1}{2}$  fathoms water, lies half a cable from the shore off Port Saint Estève, and nearly 3 cables east-north-eastward from Port du Frioul lighthouse.

**Buoy.**—A black buoy, surmounted with a cylinder, is moored  
15 about 70 yards southward of it. Cap de Croix (*Lat. 43° 17' N., Long. 5° 19' E.*), open eastward of Le Trou, leads eastward of the shoal; at night, Île de Planier light open south-eastward of Pointe Courille leads south-eastward of it.

*Chart 3414, Approaches to Marseille.*

**ÎLE DE PLANIER**,  $4\frac{1}{2}$  miles south-westward of Île de Pomègues, is about a cable in extent, low and flat; besides the present lighthouse, there is an old lighthouse on the islet, the keepers' house, and, on the eastern point, a low white tower. View at page 72. A reef extends 2 cables south-westward from the islet, and on its  
25 western end is Pierre à la Bague, a rock with 2 feet water; Le Souquet, a rock with 4 feet water, lies  $1\frac{1}{2}$  cables eastward of the islet. The islet should not be closed to less than half a mile.

**LIGHT.**—A light is exhibited, at 203 feet above high water, from a white masonry tower, 203 feet high, on Île de Planier.

30 Attention is directed to the difference between this light and Farman light. See Light list.

**Fog signal.**—A fog signal is made at the lighthouse.

**Life-saving station.**—A rocket apparatus is stationed at the lighthouse.

35 **Le Veyron**, one mile east-north-eastward of the lighthouse, is a small rocky patch, with 7 fathoms water, and from 14 to 34 fathoms around. The patch should be avoided, as the sea is very heavy over it; a large vessel, passing eastward of the islet, should not close it to less than  $1\frac{1}{2}$  miles.

40 *Plan 150, Marseille.*

**The coast** from Pointe d'Endoume trends south-eastward one mile to Cap du Rocas (Roucas) Blanc, and is high and steep, rising to

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

the hill on which is *Notre Dame de la Garde* fort; on the southern side of this hill are numerous villas and buildings, amongst which is the high *Château du Rocas Blanc*. Close northward of *Cap du Rocas Blanc* (*Lat. 43° 17' N., Long. 5° 22' E.*) is *Port du Prophète*, a small 5 fishing port with a protecting breakwater, and south-eastward of the point is a large bathing establishment.

The coast from about a quarter of a mile south-eastward of *Cap du Rocas Blanc* becomes low, and the *Plage du Prado*, or du *Mont Redon*, extends southward. The little *Rivière l'Huveaune* flows 10 through the beach, and on its northern side is a small landing jetty, with a buoy about 400 feet westward of it. There is anchorage about half a mile off *Plage du Prado*, with easterly winds, in about 6 fathoms water, sand bottom.

*Chart 3414, Approaches to Marseille.*

15

**Telegraph cables.**—Two cables, to Spain and Algeria, are landed on the beach southward of *Rivière l'Huveaune*, and are marked by two buoys; anchorage is prohibited in the vicinity.

**Mont Redon**,  $1\frac{1}{2}$  miles south-south-eastward of *Pointe du Rocas Blanc*, is 171 feet high, and isolated; the beach terminates at *Pointe 20 Rouge*, about half a mile south-westward of the mount. *Pointe Rouge* is a small projection of low land with an old battery on it, and in its vicinity are houses and plantations.

**The coast** south-westward of *Pointe Rouge* rises, and has several slightly projecting points; *Mont Rose*, a little more than a mile from 25 the point, is 282 feet high, and surmounted by a battery with a noticeable cross. The coast from *Mont Rose* trends southward one mile, gradually becoming higher, and then westward about 4 cables to *Cap Croisette*; *Anse de Samena* and *Anse de l'Escalette* are situated southward of *Mont Rose*, and across the latter is a rocky reef 30 which projects about 70 yards from the coast. *Anse des Goudes*, nearly a mile southward of *Mont Rose*, is small and sheltered from the north-west by a small mole; at its head are some chemical works. *Anse de Mongenet* is westward of and separated by a headland from *Anse des Goudes*; the pilot boats stationed at *Cap Croisette* sometimes 35 shelter here.

**Cap Croisette**, the extreme of the peninsula which projects from the precipitous and barren mountain, *Marseille Veyre*,  $1\frac{3}{4}$  miles east-north-eastward and 1,421 feet high, is low and steep.

**Signal station.**—There is a semaphore on a little steep and 40 conical hill, 378 feet high, about one mile east-south-eastward of the cape; the house and tower, 36 feet high, are yellow. Views at page 84.

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

**Île Maire**, on the southern side of, and close to, Cap Croisette, is triangular in shape, its eastern side being about a quarter of a mile long, whence it extends westward half a mile; the islet is 443 feet  
5 high, whitish, and its seaward coasts are steep-to. Les Farillons, two small rocks, 13 feet high, lie close to its south point. Views at this page.

**Île Tiboulén de Maire** (*Lat. 43° 13' N., Long. 5° 20' E.*), 165 yards north-westward of Île Maire, is about a cable in extent,  
10 131 feet high, and steep-to. The passage between the island and islet is clear, except a rock with 1½ fathoms water, which lies close to the north-western point of Île Maire.

*Plan 150, Marseille.*

**MARSEILLE. — Pilots.** — Pilotage is compulsory. The  
15 pilotage station of Marseille has 46 pilots and 12 assistants under the orders of a chief pilot. Pilot boats are stationed—one at Port de Bouc, two at Carry, two at Cap Caveaux; two near Île de Riou or Île Maire, and several at the entrance to the port.

French sailing vessels pay 0fr. 22c. per registered ton for enter-  
20 ing, and 0fr. 15c. for leaving.

The whole rate is due from vessels boarded outside a line from Île de Riou to Île de Planier, and thence to Carry; three-quarters of the rate from vessels boarded inside this line but outside a line from Pointe Rouge (Mont Redon) to Cap Caveaux (Pomègues), and thence to Cap  
25 Méjean; one quarter of the rate from vessels boarded inside the last line.

The rates of pilotage at night (half an hour after sunset to half an hour before sunrise) are slightly increased.

A vessel anchored at Marseille which engages a pilot to shift berth,  
30 or to go from one of the ports to another, pays a rate of 0fr. 25c. per registered ton, but not less than 10fr.

Masters of vessels having any complaint to make regarding the pilotage must do so to the chief pilot within 48 hours of entry, after which no complaint can be received.

35 The pilotage offices are on the quay at the entrance to Port de la Joliette and on the North quay of Vieux port.

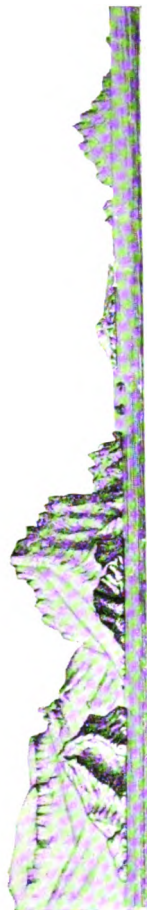
**Directions.** — From the westward pass northward of Île Ratoneau, and in a sailing vessel with north-westerly winds keep the coast of Méjean aboard, avoiding the tunny nets of Gignac. The  
40 pilots usually board vessels at Carry or Méjean.

At night, the lights of Cap Couronne and Île de Planier, and then those of Saut de Marrot and Joliette, indicate the course to be taken.

From the southward pass between Île de Planier and Cap Croisette, where the pilots usually board vessels, and then steer for Île d'If,

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Marseille Veyre.*



*Ile Tiboulon,  
half a mile to the eastward.*

*Ile Maire.*

*Les Farillons.*

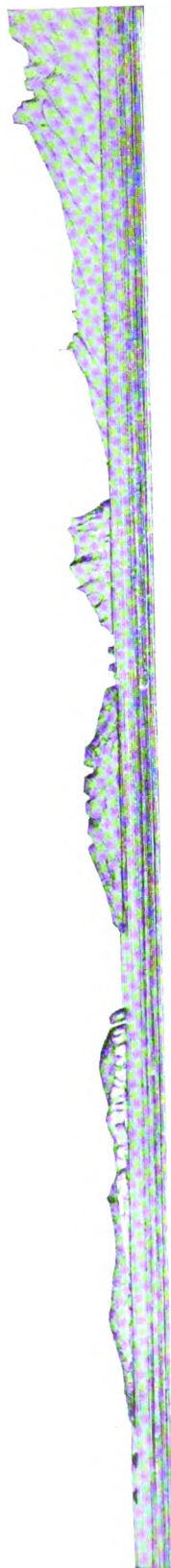
*Ile Jaire.*

*Les Congloué.*

*Ile Riou.*

*Moyade.*

Marseille; south approach.



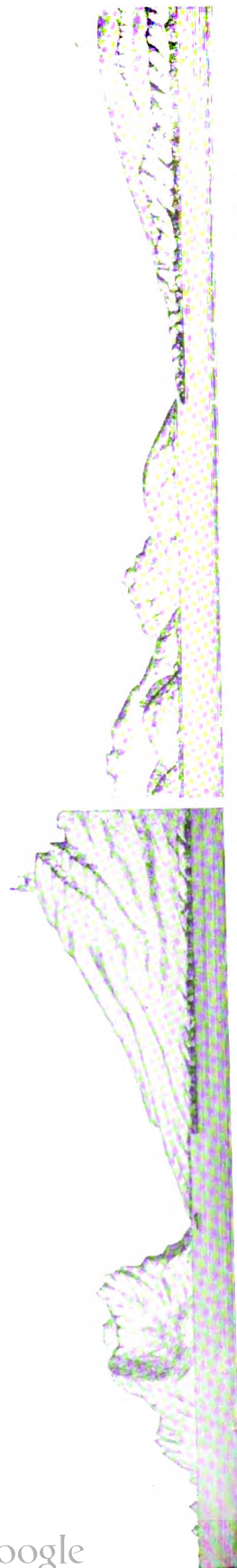
*Ile Calseraigne.*

*Ile Jaire,  
open southward of Les Farillons, 290° true.*

*Ile Maire.*

*Croisette semaphore.*

Passage northward of Ile Jaire, from the eastward.



*Les Farillons.*

*Ile Maire.*

*Rocher de la Montaine.*

*Croisette semaphore.*

*Ile Riou.*

*Ile Jaire.*

From the anchorage eastward of Plateau des Chèvres.





*Plan 150, Marseille. Var. 11° 0' W.*

and pass it on either side at the distance of one cable. Then steer north-eastward, and pass about midway between Cap de Croix and Tourelle du Canoubier; when Joliette lighthouse bears about 75° true, steer for the entrance between Joliette on the north, and Pharo and 5  
Maure lighthouses on the south.

To pass between Pointe d'Endoume (*Lat. 43° 17' N., Long. 5° 21' E.*) and Le Sourdaras, in a vessel of heavy draught, leave Îles d'Endoume and the point one cable to the eastward. Joliette light- 10  
house in line with Pointe du Pharo lighthouse until Notre Dame de la Garde fort is well open northward of Îles d'Endoume, leads south-eastward of Roches Tarantan.

At night, pass not less than 1½ miles eastward of Île de Planier light, and steer to pass eastward of Île d'If light; on entering the sector of Saut de Marrot light showing *white* flashes, steer towards 15  
that light, 8° true, keeping in the same sector, which leads through the channel between Île d'If and Les Canoubier and Sourdaras, until Sourdaras light bears southward of 135° true; then steer to pass between Pharo and Joliette lights.

Almost all sailing vessels take tugs, which cruise, when the weather 20  
permits, as far seaward as the vicinity of Île de Planier.

**Fog.**—In Golfe de Marseille fog sometimes occurs, which renders navigation difficult; in winter it is accompanied by snow, but in July and August it is frequent with light easterly winds, and is partially 25  
caused by smoke from the towns and factories; the sea breeze then generally clears the air in the afternoon.

**Quarantine.**—Vessels ordered to be placed in quarantine hoist the yellow flag, and proceed as soon as possible to Port du Frioul.

**Submarine vessels exercising.—Fairway reserved for traffic.**—When the square flag, upper half red, lower half 30  
yellow, is hoisted at the signal stations, or by the vessel escorting submarine vessels, to indicate that the latter are exercising submerged, vessels entering or leaving the ports of Marseille are requested to use the fairways in which submarine vessels are prohibited from exer- 35  
cising submerged, as follows:—

In Rade de Marseille, eastward of the alignment of Île Maire summit and Île d'If summit.

In Rade d'Endoume, eastward of the alignment of the west extreme of Île de Riou between Cap Croisette and Île Maire.

**Harbour regulations.**—Steam vessels entering or leaving 40  
must have a look-out man stationed on the foremast, to report any movements of vessels in the roads, Avant port Sud or Bassin de la Joliette. The signal for a tug is a white flag at the yardarm.

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

Vessels carrying mails leaving the port have precedence of other vessels.

- By day:—Every steam vessel must announce her departure,  
 5 15 minutes before casting off, by a long blast followed by two short blasts of the whistle; at the same time she will hoist the mail or company's flag.

If a vessel cannot leave at her fixed time she will lower her flag and give one blast of the whistle.

- 10 If the master does not comply with this order, the Service of the port will hoist at the yardarm of the signal mast the flag of the next vessel to leave; then after the second vessel has left, the first vessel must leave, within 15 minutes, assisted, if necessary, by a tug.

- At night:—Every vessel entering Bassin de la Joliette must hoist,  
 15 on passing Joliette light, a *white* light over *two red* lights, placed vertically 3 feet apart, and at least 20 feet above the bridge; these lights must be lowered as soon as Passe de la Major is cleared.

- Every steam vessel must announce her departure, 15 minutes before casting off, by a long blast followed by two short blasts of the whistle,  
 20 and at the same time she will hoist the three lights which are hoisted on passing Joliette light (*Lat. 43° 18' N., Long. 5° 21' E.*).

If a vessel is delayed she will lower the lights and give one blast of the whistle.

- A vessel entering or leaving by day or night must keep at least  
 25 2 cables from the preceding vessel, so as to have the vessel under control, should the leading vessel have to stop. In this case the leading vessel should whistle and use her siren continuously until danger of collision has passed.

The rule of the road is always to be followed.

- 30 Every steam vessel making any movement whatever in Bassin de la Joliette must take one or more tugs if the Service of the port so order, in view of a steam vessel entering or leaving.

In the basins and l'Avant ports steam vessels must proceed at as slow a speed as the weather and circumstances require.

- 35 A vessel must not pass and cross ahead of another.

The swing bridge in Traverse de l'Abattoir is opened by day or night on request by a vessel desiring to go through; vessels from Bassin National use the western channel, and those from Bassin de la Gare Maritime, the eastern channel.

- 40 **Explosives and petroleum.**—Vessels loaded with explosives and petrol are berthed in Bassin au Pétrole, in the north-eastern part of Bassin de Pinède. The total weight of explosives on board a vessel entering or leaving must not exceed 45 tons, and should the cargo include dynamite, melinite, crystalite, picric acid, or analagous explosives,  
 45 sives, three times their weight is counted for the total maximum.

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

Chinese crackers and fireworks are deemed explosives, and vessels with more than one ton on board are berthed in Bassin au Pétrole; vessels having less than one ton on board will be provided by the Service of the port with a special watchman during their stay in port. 5

Vessels arriving wholly or partially loaded with petrol or other inflammable matters must use Bassin au Pétrole, and also vessels embarking more than 2,200 gallons. The shipment of smaller quantities may be authorised by the Service of the port in other places, but whilst it is being performed all scupper and port holes are to be tightly closed. For other regulations for landing and embarking explosives and inflammable matter, *see* Port regulations. 10

**Harbour signals.**—The following signals for regulating the entry to, and exit from, Bassin de la Joliette (*Lat. 43° 18' N., Long. 5° 21' E.*) and Vieux port, are made from a mast on the western side of Traverse de la Major, at a horizontal arm terminated by a disc, with black balls by day, and with *red* and *green* lights at night. The horizontal arm points north-west and south-east; the balls and lights are placed vertically, 7 feet apart. 15

No signal at the mast by day or night indicate that vessels are free to move. 20

By day, the arm horizontal, or at night, three *red* lights vertical, signifies entrance prohibited.

By day, three balls, vertical, or at night, three *green* lights, vertical, signifies exit, and any movement inside prohibited. 25

By day, the arm horizontal and under it two balls vertical, or at night a *green* light between two *red* lights, vertical, signifies entrance or exit prohibited.

**MARSEILLE**, the principal seaport of France, is situated on the slopes of the hills which surround Vieux port, and considerably south-eastward. It is a handsome modern city, all that was mediæval having been removed, and no trace remains of the ancient Massilia, founded by Phoceans from Asia Minor about 600 B.C., which long retained its liberty as an independent republic, but was united to the crown of France in 1481 by Louis XI. 30

Two fine thoroughfares, crossing each other at right angles, traverse the city. There are numerous handsome public buildings, particularly the cathedral, Hotel de Ville, and palace; also public libraries, museums, and zoological gardens. 35

Cathedrale Sainte Marie Majeure, situated on a terrace just within the southern part of Bassin de la Joliette, has two towers and several domes; it is 460 feet long. 40

The church at Notre Dame de la Garde is situated on the summit of a hill, 531 feet high, southward of Vieux port: there is a statue of the Virgin over its bell tower. 45

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

The country around is extremely arid, and the mistral (north-west wind) is blighting and noxious in the extreme.

The population by the census of 1911 was 554,934.

- 5 A British Consul-General and two Vice-Consuls are stationed at Marseille (*Lat. 43° 18' N., Long. 5° 22' E.*).

**Trade.**—The chief manufactures are soap, sugar, oil, glass, and oil-cake, and there are lead smelting, steam engineering and sulphur works. In the vicinity are large lignite mines and stone quarries.

- 10 The chief imports in 1913 were cattle, coal, coffee, cotton, fruit and nuts, hides and skins, metals, oils, oil seeds and nuts, sugar, dried vegetables, barley, maize, wheat, wine, beer, spirits, and wood, and amounted to 5,886,217 tons; the chief exports were bauxite, brandy, cement, coal, grain, ground-nuts, hides, oil-cake, oils, potatoes, soap,  
15 sugar, tiles, wines, and liqueurs, and amounted to 3,052,435 tons.

**Shipping.**—In 1913, 6,113 steam vessels, of 9,998,969 net tons, and 2,518 sailing vessels of 487,532 tons, entered the port; of these, 812 steam vessels of 2,498,020 tons were British.

- Supplies** of all descriptions are readily obtained. Water is abundant, and taken by pipes to the quays, or supplied from steam tank  
20 vessels. It is bad for drinking, for which purpose it should be filtered and boiled.

- Coal.**—About 57,000 tons of coal are usually in stock. Coaling is done from lighters, of which there are about 400 of from 50 to  
25 150 tons each, 100 being kept loaded; these are taken by tugs where required. The coal is put on board by baskets, aided by steam cranes, electric motors, &c.; the personnel is numerous and well trained, and about 1,000 tons can be loaded in 24 hours.

- The Government keeps some 87,000 tons of patent fuel in stock.  
30 French coal is consigned to Bassin de la Gare Maritime and English coal to Bassin National.

- Repairs.**—Ordinary repairs to hull can be undertaken by the Compagnie de Messageries, whose works are at La Ciotat, by the Chantiers et Ateliers de Provence de Port de Bouc, and by several  
35 firms at Marseille. The same companies, as well as the Société des Forges et Chantiers de la Méditerranée, La Société Stapfer de Duclos, and the Société Marseillaise de Construction Mécanique, can undertake all kinds of repairs to machinery.

**Docks.**—See Appendix.

- 40 **Time.**—Marseille observatory is open free to officers for the purpose of comparing chronometers. Les Faculté des Sciences and some private establishments also allow comparisons to be made.

*General charts 3414, 1805, 2607, 1780, 2158a, 449.*

*Plan 150, Marseille. Var. 11° 0' W.*

**Hospitals.**—Seamen are received in all the hospitals of the city, according to the beds disposable; medical cases are charged 3fr. and surgical cases 3fr. 50c. per day. Officers can be accommodated in the wards, or in private rooms at charges varying from 4fr. to 6fr. 50c. 5 per day.

**Sailors' home.**—Maison du Marin, 104, Boulevard des Dames, is an establishment which has sleeping accommodation for officers and 70 men. An office is attached which provides berths for seamen free of charge. 10

**Life-saving stations.**—A lifeboat is stationed in the port; a lifeboat and a life-saving gun at Pharo battery; rocket apparatus in Avant port Nord and Bassin de la Joliette; a life-saving gun at Saint Henry Custom house; and a station for rendering aid on Plage du Prophète. Four steam tugs are fitted with life-saving guns. 15

**Telegraph cables.**—Four French cables are laid from Marseille to Algiers, one to Oran, and one to Bizerta; a British cable is laid between Marseille and Barcelona, and two between Marseille and Bona.

**Meteorological table.**—See Appendix. 20

*Chart 3414, Approaches to Marseille.*

**THE COAST** from Cap Croisette (page 83) trends east-south-eastward  $1\frac{1}{2}$  miles to Pointe de Marseille Veyre (*Lat. 43° 12' N., Long. 5° 22' E.*), and is rugged and steep to eastward to La Mounine, which is situated close to the coast,  $1\frac{1}{4}$  miles from the cape, and is low. 25

At the head of Anse de Callelongue (Longue cove), immediately westward of Cap Croisette semaphore, is an abandoned factory.

**Île Jaire**, about a mile south-eastward of Île Maire, is about 7 cables long north-west and south-east, narrow, 171 feet high, and arid, with irregular but clear coasts. It is prolonged north-westward 30 about 2 cables by Île de Jarron, the passage between being narrow and unnavigable. View at page 84.

**Plateau des Chèvres**, with  $3\frac{1}{2}$  fathoms least water, extends southward from La Mounine and Pointe de Marseille Veyre; between the bank and Île Jaire there is a narrow channel with depths 35 of 4 to  $5\frac{1}{2}$  fathoms. Vessels with local knowledge frequently use this channel, keeping near the island.

**Four à Chaux anchorage.**—Temporary anchorage can be obtained, sheltered from north-westerly winds, eastward of Plateau des Chèvres, in 6 to 7 fathoms water, weed bottom, with the west point 40 of Île Riou open eastward of Île Jaire, and La Mounine in line with the north point of Île Maire, but vessels must not be caught here with an easterly wind. Views at page 84.

*General charts 1805, 2607, 1780, 2153a, 449.*

*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

**Ile Calseraigne**, half a mile south-eastward of **Ile Jaire**, is half a mile long north-west and south-east, about a cable broad, and 151 feet high; some rocks, of which **L'Esteou** is the principal, extend  
5 a short distance from its southern point. The channel between the islands has from 5 to 9 fathoms water, but **Écueil de Miet**, a rocky shoal with 7 feet water, lies in it, 2 cables south-eastward of **Jaire**.

**Beacon**.—An iron beacon, painted red and black in horizontal bands, and surmounted by a red sphere, 20 feet high, stands on  
10 **Écueil de Miet**.

**Ile de Riou**, half a mile southward of **Calseraigne**, is  $1\frac{1}{4}$  miles long east and west, about a quarter of a mile broad, steep, rugged, and has two remarkable peaks, each surmounted by a tower; the eastern peak is 630 feet high.

15 **Ilot Moyade**, small, and 13 feet high, lies close off the south-western point of the island, the channel between having 8 fathoms water. **Les Moyadons**, about  $1\frac{1}{2}$  cables north-westward of **Moyade**, are two rocks which scarcely uncover. **Écueil de Milieu**, in the middle of the passage between **Riou** and **Calseraigne**, has  $1\frac{3}{4}$  fathoms water.

20 This passage is but little used, although it presents no difficulty. There is anchorage for small vessels, sheltered from southerly winds, with **Grand Congloué** seen midway between **Petit Congloué** and **Riou**, and **Croisette** signal station in line with the eastern end of **Ile Jaire**. Here the current sets constantly westward at a rate of half to  $1\frac{1}{2}$  knots.

25 Views at page 84.

**Beacon**.—An iron beacon, painted red and black in horizontal bands, and surmounted by a red sphere, 20 feet high, stands on **Écueil de Milieu**.

30 **Ilots Grand Congloué** and **Petit Congloué** lie about  $1\frac{1}{2}$  cables north-eastward of the eastern part of **Ile Riou**; the channels between them and **Riou** have from 13 to 21 fathoms water.

**Les Empereurs**, or **Farillons de Riou** (*Lat.  $43^{\circ} 10'$  N., Long.  $5^{\circ} 24'$  E.*), are two rocks 82 and 36 feet high, off the south-east part of **Riou**, from which the outer and higher one is distant about  
35  $2\frac{1}{2}$  cables; the bottom is foul between them and **Riou**.

**Calanque de Courtiou**.—The coast from **Pointe de Marseille Veyre** trends eastward, with a bend to the northward,  $2\frac{3}{4}$  miles to **Bec de Sormiou**, and is high and rugged.

40 **Anse de Marseille Veyre**, immediately eastward of **Pointe de Marseille Veyre**, has cement works, with a high iron chimney, on its shore.

**Bec de Sormiou**, the south-eastern end of a peninsula, is about 165 feet high, white, and bare. **Calanque de Sormiou** extends half a mile north-westward on the north-eastern side of the peninsula, and is

*General charts 1805, 2607, 1780, 2158a, 449.*

*La Grande Chandelle.*



*Cap Morgiou. Pointe Castel Vieil.  
Entrance to Port Veauz and Port Pin.  
Port Miou entrance, three-quarters of a mile north-north-westward.*



*Cassis lighthouse, bearing 18° true,  
distant half a mile.  
(Altered, and lighthouse  
established on mole head, 1915.)*

*Mole.  
Baie de Cassis.*

*Chapelle Ste Croix.  
Steeple.*

*Château.*



*Cassis lighthouse.  
(Altered 1915.)*

*Château.  
Chapelle Sainte Croix.  
Mont Gardlaban.*

*Cap Camille.  
Baie de Cassis from La Cassidaigne shoal.*





*Chart 3414, Approaches to Marseille. Var. 11° 0' W.*

from one to 3 cables wide; at the head of the bay is a Custom house and some other houses. The bay only affords shelter to coasting vessels during mistrals; in winter it should not be used.

The coast from the head of Calanque de Sormiou trends east-south-eastward,  $1\frac{4}{10}$  miles to Cap Morgiou, which is a very white cliff, 130 feet high, with the walls of two batteries on it. 5

**Calanque de Morgiou**, which extends north-westward, on the north-eastern side of Cap Morgiou, affords shelter with off-shore winds; its shores are bold, and at its head is a narrow creek with a Custom house and some fishermen's houses around it. 10

Cap Davenson (*Lat. 43° 12' N., Long. 5° 29' E.*), one mile eastward of Cap Morgiou, is high and rugged.

Mont Puget or Cap Gros, three-quarters of a mile northward of Calanque de Morgiou, is 1,798 feet high, and conspicuous from the southward. Grande Chandelle, about 6 cables north-westward of Cap Davenson, is a rocky peak, 1,476 feet high, and noticeable from the westward. 15

**Port Pin.**—Pointe Castel Vieil, one mile east-south-eastward of Cap Davenson, is bold and steep-to; it is named after a rock which resembles a ruin; Pointe Cacao, about 4 cables to the eastward, is white and low, but steep-to. Between these points are Ports Veaux and Pin, two narrow inlets with deep water; Port Veaux extends north-westward, and is open to the south-east. Port Pin extends northward, and affords temporary anchorage during summer for small vessels. View at page 90. 20 25

**Baie de Cassis.**—The coast from Pointe Cacao trends north-eastward  $1\frac{1}{2}$  miles, and then turns south-eastward about one mile to Cap Canaille. Baie de Cassis, the entrance to which is between Pointe Cacao and Cap Canaille, has general depths of from 32 to 7 fathoms, good holding ground, but southerly winds cause a heavy sea. Views at page 90. 30

**Mooring buoys.**—Three mooring buoys are placed about 70 to 100 yards off the coast between Pointe Cacao and Port Miou, for the use of vessels loading limestone obtained from the north-western shore of the bay. 35

**Port Miou**, a quarter of a mile north-eastward of Pointe Cacao, is a narrow inlet which affords good shelter for vessels of 13 feet and less draught. Its entrance is open south-eastward, and within it trends half a mile north-eastward, with depths of from three-quarters to  $4\frac{3}{4}$  fathoms, whilst there are 12 fathoms in the entrance. During the rainy season a strong current runs out of the inlet. It is difficult 40

*General charts 2607, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 10° 55' W.*

to enter under sail, and for this reason is not much frequented; there is a chapel on a hill on the eastern entrance point.

**Port de Cassis** (*Lat. 43° 13' N., Long. 5° 32' E.*), at the head  
5 of Baie de Cassis, though small, is safe, and admits vessels of 13 feet draught. A mole projects 318 yards westward from the eastern shore, which protects it from southerly winds, the entrance between the mole-head and western shore being 60 yards wide.

The port is bordered on the north and eastern sides by the quays  
10 and the houses of the town, the church of which has a steeple. La Chapelle de Sainte Croix is situated on a hill, 495 feet high, about half a mile north-eastward of the town, and an old windmill stands on about the middle of the mole.

Caution is required in entering, as a current, caused by a large  
15 spring in the rocks under the lighthouse, sets out of the entrance. With strong southerly winds it is dangerous to enter, in consequence of the heavy sea at the entrance, when it is better to make for Port Miou.

Vessels in the port moor, head to the south-westward, with hawsers  
20 from each bow and quarter to rings secured to the rocks; with fresh winds it may be necessary to have also an anchor ahead and astern.

The figs and pomegranates of Cassis are good; there is a considerable trade in muscatel wine; shipbuilding is carried on; there is also fishing for coral.

**LIGHTS.**—A light is exhibited, at 39 feet above high water, from  
25 a metal column on an iron hut, 33 feet in height, situated on the western side of the entrance to Port de Cassis.

A light is exhibited, at 57 feet above high water, from a masonry  
tower, 46 feet in height, situated on the end of the mole.

**Outer anchorage.**—There is anchorage during off-shore winds  
30 outside the port, with Chapelle de Sainte Croix well open south-eastward of the end of the mole. Do not anchor eastward of Pointe des Lombards.

**The coast** from Cassis trends south-south-eastward one mile to  
35 Cap Canaille; it is skirted close in by rocks, and two points project south-westward; one, Pointe des Lombards, about 3 cables south-eastward of the end of the mole, is steep, covered with olives, and on it is Château de Cassis; breakers extend about half a cable from the point; the other, Pointe Corton, is a quarter of a mile further east-  
40 south-eastward; spits extend nearly three-quarters of a cable from it, and on each side of the point is a bay with a sandy beach.

**Cap Canaille** slightly projects, and rises abruptly to precipices  
1,224 feet high. View at page 90.

*General charts 2607, 1780, 2158a, 449.*

*Chart 3414, Approaches to Marseille. Var. 10° 55' W.*

**The coast** from Cap Canaille trends south-eastward  $3\frac{1}{2}$  miles to Bec-de l'Aigle (*Lat.  $43^{\circ} 9' N.$ , Long.  $5^{\circ} 36' E.$* ), and is high reddish cliffs, at the base of which and distant about half a cable are some detached rocks. On the high coast about three-quarters of a mile north-westward of the bec is the chapel of Notre Dame de la Garde and the ruins of a mill nearly half a mile north-eastward of it. 5

Le Capucin, about 2 cables south-eastward of the chapel, is a rocky point formed like a head covered with a hood, which marks the position of Calanque de Figuerolles, a little inlet, where small craft sometimes obtain shelter. 10

**Signal station.**—On a summit, 1,063 feet high, near the coast  $1\frac{1}{4}$  miles south-eastward of Cap Canaille, is a semaphore; the house and tower are 36 feet high, and white.

**La Cassidaigne**, a rocky shoal 2 miles south-westward from the semaphore is  $1\frac{1}{2}$  cables long, north and south; its northern part is awash, and its southern part has  $2\frac{1}{4}$  fathoms water; there are depths of from 16 to 30 fathoms close around, and of from 37 to 51 fathoms between the shoal and the land to the northward and north-eastward. Although the sea nearly always breaks on it, caution is necessary when in its vicinity at night or in thick weather. 15 20

**Beacon.**—A beacon tower, 60 feet high, painted black and red in horizontal stripes, stands on the northern part of the shoal.

**Clearing marks.**—Île de Planier lighthouse well open southward of Les Empereurs rocks, off the south-east part of Île Riou, bearing northward of  $287^{\circ}$  true, leads southward of the shoal. 25

At night, Île de Planier light open northward of Riou, bearing  $278^{\circ}$  true, or Grand Rouveau light bearing  $117^{\circ}$  true, leads northward, and Planier light bearing northward of  $287^{\circ}$  true, or Grand Rouveau light, eastward of  $106^{\circ}$  true, leads southward of the shoal. 30

*Chart 2607, Marseille to Agay road.*

**Measured distance.**—There is a measured distance of 8.753 miles southward of Baie de la Ciotat for ascertaining the speed of steam vessels; the running mark is Tour de Port Issol and Crède beacon in line  $89^{\circ}$  true. The western limit is the alignment of La Chapelle de Sainte Croix and La Cassidaigne beacon,  $359^{\circ}$  true. The eastern limit is the alignment of Villa Marie-Rose, a blue house with a red roof, and a beacon on the west point of Île de Bandol,  $1^{\circ}$  true. The square tower of Château Bizalion, on the shore northward of Ciotat, and Canonnier du Sud beacon, in line about  $2^{\circ}$  true, divides the distance into two parts, the western of which is 2.8 miles in length. The depth at the western end of the distance is about 100 fathoms, and it decreases to about 23 fathoms at the eastern end. 35 40

*General charts 2607, 1780, 2158a, 449.*

*Plan, Baie de la Ciotat, on 2819. Var. 10° 50' W.*

**BEC DE L'AIGLE** is a remarkable headland, 509 feet high, rugged, bare, and reddish in colour.

**Ile Verte** (*Lat. 43° 10' N., Long. 5° 37' E.*), 3 cables eastward of  
 5 **Bec de l'Aigle**, is about 3½ cables long north-west and south-east, 2 cables broad, 154 feet high, and irregular in shape; on its south-east end are two small forts. It is bold-to except the northern end, where it is bordered by shoal water to the distance of half a cable. View at page 96, and on chart 2607.

10 **Les Canonniers**.—The channel between **Bec de l'Aigle** and **Ile Verte** has depths of from 8 to 18 fathoms, but **Canonnier du Sud**, a rocky shoal with 3 feet water, lies nearly in the middle.

**Beacon**.—A red masonry beacon, surmounted by a cone, 26 feet high, stands on the northern part of **Canonnier du Sud**.

15 **Canonnier du Nord**, a rocky shoal with 2 fathoms water, lies 1½ cables northward of the beacon and three-quarters of a cable from the north-western end of **Ile Verte**. In the fairway between these shoals and **Bec de l'Aigle** there are depths of from 11 to 18 fathoms, but a patch with 8 fathoms water lies about 1½ cables south-westward  
 20 of the beacon.

**Directions**.—In proceeding northward through the channel pass a cable westward of **Canonnier du Sud** beacon, and then steer for **Môle Neuf** lighthouse, 8° true, guarding against being set to the eastward until **Pointe du Deffend** is well open northward of  
 25 **Ile Verte**, when steer north-eastward. In this channel the currents are very variable, sometimes setting northward and sometimes southward, and attaining a rate of 2 knots. Very violent squalls descend from **Bec de l'Aigle** during north-westerly winds; the channel should not then be taken, even by steam vessels, on account of the danger  
 30 of being set on **Les Canonniers**.

**BAIE DE LA CIOTAT**, the entrance to which is situated between **Bec de l'Aigle** and **Pointe du Deffend**, nearly 4 miles east-south-eastward, extends about 2 miles to the northward, the depth decreasing gradually from 35 fathoms water in the entrance  
 35 towards the land. The shores rise gradually to mountains from about 750 to 1,706 feet high. **Les Montagnes de Sainte Baume**, which attain a height of 3,766 feet, extend eastward about 7 miles from 7 miles northward of the bay; the western end of the range falls suddenly, and is remarkable.

40 **The shore** of the bay from **Bec de l'Aigle** trends northward 6½ cables to **Môle Neuf de la Ciotat**; it is at first high, but decreases in height towards the town, and forms two bights separated by **Pointe du Matelad**, in the northern of which a small jetty affords shelter for

*General charts 3414, 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de la Ciotat, on 2819. Var. 10° 50' W.*

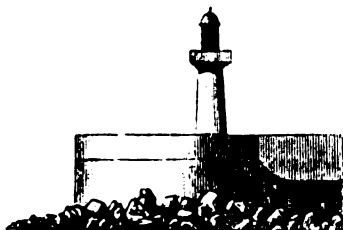
boats; the water is shoal off this point, and the 5-fathom line is  $1\frac{3}{4}$  cables eastward of it.

**Port de la Ciotat** is small; its entrance is between Môle Neuf and a small tongue of land on the north, terminated by Môle Bérourard, which projects southward. The entrance to the port is 104 yards wide, with a depth of  $3\frac{1}{4}$  to  $3\frac{3}{4}$  fathoms, and the port is completely sheltered, but is suitable only for small vessels, being dredged to 20 feet in the central part, and to 10 feet off and alongside the quays used by the Messageries Maritimes. Môle Vieux projects into the middle of the port from the south-west side; the dry dock belonging to the Compagnie des Messageries Maritimes is situated between the two sides of the mole. *See Appendix I.*

This company has a large shipbuilding yard here, and the port is almost entirely occupied by their vessels.

**LIGHTS.**—A light is exhibited, at 48 feet above high water, from a white circular turret, 44 feet high, on the head of Môle Neuf.

A light is exhibited from a white circular turret, 42 feet high, on the head of Môle Bérourard (*Lat. 43° 10' N., Long. 5° 37' E.*).



Môle Neuf lighthouse.



Môle Bérourard lighthouse.

**Buoy.**—A white mooring buoy lies in 7 fathoms, about 3 cables north-eastward of Môle Bérourard.

**Weather signals** are made at Môle Neuf lighthouse. *See page 16.*

**La Ciotat town**, on the north side of the port, is surrounded by an ancient rampart; the houses are well built, and the streets are regular and paved; the population is about 10,000. There is some trade in wines, dried fruits and oil, the vicinity being interspersed with vineyards, olive grounds, and plantations of oranges and figs.

**Supplies.**—Water and provisions of all kinds are obtainable.

**Repairs** can be executed at Ciotat by the Compagnie des Messageries Maritimes. There are an 80-ton floating crane, a 20-ton electric crane, and three 5-ton cranes.

*General charts 3414, 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de la Ciotat, on 2819. Var. 16° 50' W.*

**Dock and patent slip.**—See Appendix I.

**Life-saving station.**—A rocket apparatus is stationed at Ciotat Custom house.

- 5 **Rade de la Ciotat.**—There is anchorage during fine weather in Rade de la Ciotat, but mistrals, strong north-westerly winds, blowing over the high land above the town, cause heavy squalls and eddies. With these winds, sailing vessels from the westward, after passing Île Verte, should keep in the steady breeze and stand well towards the  
10 head of the bay and then tack. The anchorage is limited northward by Le Capucin (page 93) slightly open southward of the square tower of the Hôtel de Ville, the southern tower in the town; and southward by Môle Neuf lighthouse in line with Ciotat semaphore. At night, anchor with Môle Bérourard light bearing between 237° and  
15 260° true.

Do not anchor southward of the southern limit, or more than 3 cables off-shore, or in a greater depth than 10 fathoms, where there is less shelter from the wind, and anchors are liable to drag; vessels disregarding this precaution have been driven to sea.

- 20 **Rade de Ceyreste** is situated north-eastward of Rade de la Ciotat. Petit Cap Saint Louis (*Lat. 43° 11' N., Long. 5° 37' E.*), about 4 cables north-eastward of Ciotat town, has a castle with turrets on it; Cap des Moulins, 6 cables further east-north-eastward, is a projecting point, with two windmills on it.

- 25 **Baie de la Vierge** lies between Cap des Moulins and Pointe de la Beaumette, three-quarters of a mile eastward; the shore between Ciotat and this point is generally low. The shore between Pointe de la Beaumette and Cap Liouquet (Lieuquai or du Rôt), 6½ cables east-south-eastward, presents small cliffs. The shore between Ciotat and Cap  
30 Liouquet is bordered to the distance of from one to 1½ cables by shoal water, which makes landing difficult, especially in the western part. The shore between Cap Liouquet and Cap Saint Louis, 7 cables east-south-eastward, is blackish low cliffs.

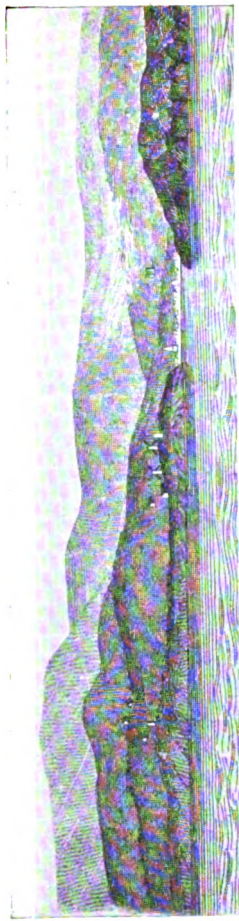
- Anchorage.**—There is anchorage in Rade de Ceyreste anywhere  
35 southward of Cap des Moulins, with Le Capucin open slightly southward of the square tower of the Hôtel de Ville. Both Rades de la Ciotat and de Ceyreste should be quitted with on-shore winds.

- Baie des Lèques** extends about 6½ cables east-north-eastward from its entrance between Cap Saint Louis and Pointe Grenier,  
40 one mile to the southward; the shore of the bay is low, and bordered by shoal water which extends nearly 2 cables from its head. On the

*General charts 3411, 2608, 2607, 1780, 2158a, 149.*



*Ile Verte.*  
Bec de l'Aigle.  
From Baie des Lèques anchorage.



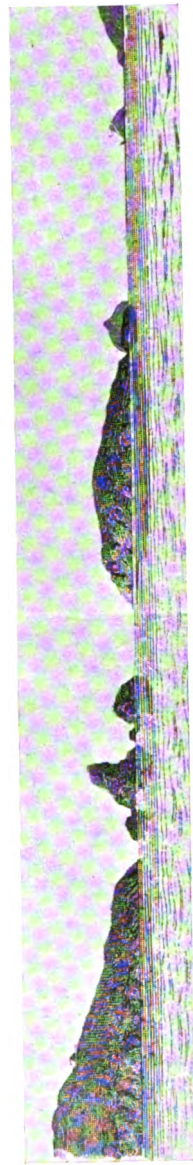
*Tour de Port Isol.*  
Sanary. Château Michel. Petit Rouveau.  
Passe de la Sautaire, W. end of Petit Rouveau in line with Château Michel.



*Ile des Embiez.*  
Grande Rouveau lighthouse  
in line with La Cride beacon, bearing 174° true.  
Baie de Bandol.



*Ile du Grand Rouveau.*  
Les Frères.  
*Ile du Petit Rouveau.*  
From Le Grand Canoguier.



*Pointe Saint Pierre and battery.*  
Les Frères.  
*Ile de Petit Rouveau.* *Ile Riou.* *Ile Maire.*  
From Rade du Brusq; North point of Petit Rouveau and Île Riou in line.





*Plan, Baie de la Ciotat, on 2819. Var. 10° 50' W.*

north shore of the bay is Les Lèques village, where there is a little chapel and a small stone mole, which shelters boats in 5 feet water; about the middle of the bay is Tour des Lèques, an old windmill, which has been turned into a house.

**Anchorage.**—There is anchorage in the bay, in about 6 fathoms water, with Bec de l'Aigle in line with the north extreme of Île Verte, view at page 96, la Chapelle des Lèques in line with the end of the small mole, and about 2 cables off-shore, but it is impracticable with winds from seaward; there is also anchorage in the southern part of the bay in 5 to 8 fathoms west-north-westward of the old windmill of Tarente, but it is very bad with winds between north and south, through west.

**The coast** from Pointe Grenier, on which is a battery in ruins, trends southward 3 cables to Pointe Fauconnière, and is 505 feet high, and wooded, with a steep rocky yellow cliff to seaward.

On the northern slope of hills, about 2 miles eastward of Pointe Grenier, is l'Oratoire de Saint Jean.

**Pointe Fauconnière** (*Lat. 43° 9' N., Long. 5° 41' E.*) is high, reddish, and bold; from it the coast trends south-eastward  $8\frac{1}{2}$  cables to Pointe du Deffend, and is moderately high and rugged.

**Pointe du Deffend** (Cap d'Alon) is a white cliff 98 feet high.

*Plan, Baie de Bandol and Baie de Sanary, on 2819.*

**Sèche d'Alon.**—Port d'Alon, about half a mile eastward of Pointe du Deffend, is a small cove open southward, and a bad anchorage. Sèche d'Alon, about  $1\frac{1}{4}$  cables southward from the western entrance point of the port, is rocky, with 2 feet water. Le Fort de Six-Fours open southward of Île Rousse, 110° true, leads southward of the shoal.

**Baie de la Moutte** extends about  $3\frac{1}{2}$  cables north-eastward, between the eastern entrance point of Port d'Alon and Pointe Engravier, about three-quarters of a mile to the south-eastward. In the north-eastern part of the bay a stream flows through a beach, and La Galère, a small rock above water, lies southward of it. The shore between La Galère and Pointe Engravier is a reddish cliff, about 150 feet high, rising to a hill 272 feet high.

**Île Rousse**, about a cable southward of a point 2 cables east-south-eastward of Pointe Engravier, is 130 yards long north-east and south-west, and 52 feet high; the passage between the islet and the shore is very narrow, and has a depth of  $1\frac{1}{2}$  fathoms.

**BAIE DE BANDOL.**—One mile eastward of Île Rousse is a point projecting about a quarter of a mile southward, 82 feet high, and on it is Château de Bandol, an old square fort. Creux de Bandol,

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de Bandol and Baie de Sanary, on 2819. Var. 10° 50' W.*

- on the west side of the point, is a small shallow bay used by fishing vessels. Baie de Bandol, on the east side of the point is about  $1\frac{1}{4}$  miles deep and one mile wide, with from 12 to 16 fathoms water in the  
5 entrance, shoaling gradually to the beach, there being 3 fathoms about half a mile from the head of the bay. Bandol town is situated a short distance north-eastward of the point. The eastern shore of the bay is a narrow beach.

- Pont d'Aran, close within the head of the bay, is a railway via-  
10 duct of nine arches over Rivière d'Aran, and is conspicuous.

**Ile de Bandol**, 2 cables southward of Pointe du Château de Bandol, is a quarter of a mile long, east and west, and skirted by rocks.

The channel between the island and the point is obstructed by shallow water and weeds.

- 15 **La Fournigue**,  $1\frac{1}{2}$  cables eastward of Ile de Bandol, is a small islet; there is a depth of  $3\frac{1}{4}$  fathoms in the fairway of the channel between the island and islet, but it should not be used for navigation, as a sudden turn is necessary if entering the port.

- Beacon**.—A masonry beacon, surmounted by a sphere, 33 feet  
20 high, and painted red and black in horizontal bands, stands on La Fournigue (*Lat. 43° 8' N., Long. 5° 45' E.*).

- Port de Bandol**.—A mole projects south-eastward about 200 yards from the east side of Pointe du Château de Bandol, and then turns north-eastward 350 yards, affording shelter northward of it  
25 to small vessels of 11 feet draught. A small channel, with  $1\frac{1}{2}$  fathoms water, leads to the loading and discharging quay, but in consequence of the port silting up, vessels can now only approach the quay as they lighten by discharging.

- Light**.—A light is exhibited, at 29 feet above high water, from  
30 a white iron support over a shed, 23 feet high, on the extremity of the mole at Port de Bandol.

**Buoys**.—Four red conical buoys mark the northern side of the port, and three black conical buoys the southern side. Two white-mooring buoys are moored in the entrance.

- 35 **Life-saving station**.—A life-saving gun is stationed at Bandol Custom house.

- Rade de Bandol**, situated north-eastward of La Fournigue, affords good shelter to vessels of all sizes, but the space is small; though it is open south-westward, vessels with two anchors and good cables  
40 can remain there in any weather. Anchor in 7 fathoms, sand and weed, with Banc de la Cride beacon in line with Grand Rouveau light-house, 174° true, view at page 96, and the north point of Ile Rousse in line with Pointe du Château de Bandol, 281° true.

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de Bandol and Baie de Sanary, on 2819. Var. 10° 50' W.*

**Directions.**—At night, from the westward keep Ciotat lights open southward of Pointe du Deffend, about 298° true, until Bandol mole light is open eastward of Île de Bandol; then steer east-north-eastward to the anchorage, but bring the mole light westward of 0° true to pass eastward of La Fournigue, and keep Grand Rouveau light open westward of Pointe de la Cride. 5

To enter the port, pass between the black buoy off the end of the mole and the outer red buoy; anchor in the space marked by the buoys. 10

**Pointe de la Cride** (*Lat. 43° 7' N., Long. 5° 46' E.*), the southern entrance point of Baie de Bandol, projects west-south-westward about half a mile, and is low, with a battery on it.

Banc de la Cride extends 1½ cables west-south-westward from the point, and is rocky. 15

**Beacon.**—A masonry beacon, painted black and white in horizontal stripes, and surmounted by a diamond, 30 feet high, stands on the outer extreme of the bank.

**BAIE DE SANARY** (formerly Baie de Saint Nazaire) extends about 2 miles eastward from its entrance between Pointe de la Cride and Île du Grand Rouveau, 2 miles to the southward; it affords shelter with winds between north-west, through north, and south, in from 6 to 8 fathoms water. 20

**Oyster bank.**—A large oyster bank extends nearly a mile eastward from half a mile southward of Pointe de la Cride; vessels should not anchor on the bank. Château des Embiez bearing 180° true leads eastward of it. 25

**The shore** from Pointe de la Cride trends eastward about a mile to the head of Baie du Port Issol, which is small and encumbered with rocks; a spit extends 1¾ cables westward from the southern entrance point of the bay to the 5-fathom line. 30

Pointe du Bau rouge, 1½ cables east-south-eastward of the southern point of Baie du Port Issol, is round, with a wide base, and red in colour; Tour de Port Issol stands about 130 yards within the point and 131 feet above high water. The coast trends east-north-eastward 4 cables from Pointe du Bau rouge to the western mole of Port de Sanary. 35

**Port de Sanary** is northward of a small mole projecting south-east from a hill, about 98 feet high, on which are a chapel and two ruined mills; the entrance to the port lies between a black buoy moored off the extremity of the mole and a red buoy on the western edge of the shoal water extending off the eastern shore; it is 27 yards wide, and available for vessels of 10 feet draught, which let go the 40

*General charts 2668, 2607, 1780, 2158a, 449.*

*Plan, Baie de Bandol and Baie de Sanary, on 2819. Var. 10° 50' W.*  
 port anchor off the end of the west mole and moor to it with head to the south-east.

A dangerous sea sets into the entrance with strong southerly winds.

- 5 A mole projects about 200 yards south-westward from the east shore, the space enclosed being about a cable in length, with one fathom and less water. Sanary town is on the north shore of the port, and in it there is a square tower, and also a belfry with a spire; about half a mile north-eastward of the town, and 148 feet above high  
 10 water, is Château Michel with two towers. View at page 96.

**Light.**—A light is exhibited from a white pole over a wooden house, 21 feet high, on the end of the mole.

**The shore** from Sanary trends round from south-east to west about one mile to Pointe Nègre, forming a bay; it is a low beach, and  
 15 *Rivière de la Reppe* (d'Ollioules), the bridge over which is noticeable, and *Ruisseau Guéard* flow through it; between them is *Moulin Maron*, in ruins, on a small hill. The beach is bordered by shoal water to the distance of about 2 cables.

- Pointe Nègre** projects westward, and is low; on it is a ruined  
 20 battery; a spit extends a little more than half a cable from the point.

**Six-Fours**,  $1\frac{1}{2}$  miles eastward of Pointe Nègre, is a conical hill, 702 feet high, surmounted by a fort and tower.

**Signal station.**—At 50 feet southward of the tower on Six-Fours hill is a semaphore, a white house 36 feet high.

- 25 **Port de la Coudurière**, south-eastward of Pointe Nègre, is small and enclosed by two moles; the entrance is about 60 yards wide, and the southern part of the port has been dredged to a depth of 16 feet.

- Light.**—A light is exhibited from a metal column, 21 feet in  
 30 height, on the head of the large mole.

- The shore.**—Pointe de la Cabane is about 2 cables south-westward of Port de la Coudurière, and from it the shore trends southward 6 cables to Pointe du Brusq, and thence 3 cables further southward to Le Brusq village. It is low with several small bays and  
 35 beaches separated by points. *Ile de la Tour-Fondue*, half a mile westward of Pointe du Brusq, is now connected with the eastern part of *Ile des Embiez*.

- Ile des Embiez** is three-quarters of a mile long north and south, and about 6 cables broad; on the summit of the middle of the  
 40 island is an old château with a tower, and there are the ruins of a soda manufactory, and a Custom house on the island. Pointe de Cougousset (*Lat. 43° 4' N., Long. 5° 47' E.*), the south and highest part of the island, is 210 feet high. The island is bordered by shoals;

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de Bandol and Baie de Sanary, on 2819. Var. 10° 50' W.*

it is about 2 cables from the mainland, and in the southern part of the space between are Île du Grand Gau and Île du Petit Gau, small, and 56 feet and 33 feet high, respectively; there are channels for small flat-bottomed boats between these islets and between Île du Grand Gau and Île des Embiez. 5

**Île du Petit Rouveau** (*Lat. 43° 5' N., Long. 5° 47' E.*), about a cable north-westward of Pointe Saint Pierre, the north extreme of Îles des Embiez, is about 400 feet in extent, 46 feet high, and surrounded by rocks and shoals with Les Frères, several high rocks, 10 between it and the point.

**La Casserlane** is the northernmost of the rocks extending off Île du Petit Rouveau, from which it is distant  $1\frac{1}{2}$  cables.

**Beacon.**—A red masonry beacon, surmounted by a cone, 35 feet high, stands on La Casserlane. 15

**Île du Grand Rouveau**,  $3\frac{1}{2}$  cables north-westward from Île des Embiez, is about  $1\frac{1}{2}$  cables in extent, 102 feet high, rugged, and surrounded by rocks and shoals. Basse Renette, a rock with 3 fathoms water, lies  $1\frac{1}{2}$  cables northward of Île du Grand Rouveau.

**LIGHT.**—A light is exhibited, at 151 feet above high water, from 20 a square tower with a main building, 58 feet high, on the summit of Île du Grand Rouveau.

**Life-saving stations.**—A rocket apparatus is stationed at the Custom-house on Île des Embiez, and also at Île du Grand Rouveau lighthouse. 25

**Passe de la Sautaire.**—South-eastward of Île du Grand Rouveau, and between it and Île des Embiez, are several islets and rocks, the highest of which are La Clapassude, 13 feet, to the north-west, and La Cauvelle, 26 feet, to the south-east; Passe de la Sautaire, between La Sautaire, almost awash, and other low rocks, and La Cauvelle to the south-eastward, is a narrow channel with  $2\frac{1}{2}$  fathoms 30 water, which except in a vessel of light draught, and in case of urgency should not be taken by a stranger.

**Leading mark.**—The western extreme of Île du Petit Rouveau in line with Château Michel, on the slope of a hill north-eastward of 35 Sanary, 30° true, leads through the pass. View at page 96.

**Rochers des Magnons**, 2 cables westward of Île du Grand Rouveau, are a group of rocky islets, the highest of which is 26 feet high, with rocks and shoals extending from three-quarters of a cable to 2 cables around; they are separated from Grand Rouveau by a 40 channel half a cable wide, passing eastward of La Castelle, in which is a depth of  $3\frac{3}{4}$  fathoms between the shoals on either side.

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de Bandol and Baie de Sanary, on 2819. Var. 10° 50' W.*

- La Castelle,  $1\frac{1}{2}$  cables south-eastward of the largest of the Rochers des Magnons, is a rocky head with one foot water. Sèches des Magnons, 2 cables south-westward of the largest of the Rochers des Magnons, is a  
5 rocky patch with one foot water.

**Beacon.**—A red masonry beacon, surmounted by a cone, 35 feet high, stands on the southern extreme of the one-foot patch 2 cables south-westward of the Rochers des Magnons. As shoal water extends beyond the beacon, it should not be approached within  $1\frac{1}{2}$  cables.

- 10 A patch with  $1\frac{3}{4}$  fathoms water lies half a cable westward of the beacon;  $2\frac{1}{2}$  cables west-south-westward is a patch of  $5\frac{1}{2}$  fathoms; and  $1\frac{1}{2}$  cables further westward are Basses de la Moulinière, patches of 9 and  $6\frac{1}{2}$  fathoms, with from 11 to 20 fathoms around.

In heavy weather the sea breaks on Basses de la Moulinière.

- 15 **Rade du Brusq** (Brusc), the part of Baie de Sanary comprised between the shore and Île des Embiez, affords convenient anchorage for all classes of vessels in from 5 to 8 fathoms water, bottom mud, sand, and weeds. It is sheltered from east, through south, to south-west winds, but it is not a good anchorage with strong northerly  
20 or north-westerly winds, which prevent a sailing vessel from getting to sea. In the deeper parts, where large vessels anchor, the holding ground is bad.

- Le Grand Canoguier (Canoubier) (*Lat. 43° 5' N., Long. 5° 47' E.*), a rocky shoal about one cable in extent, with  $4\frac{1}{2}$  fathoms water, lies  
25 about half a mile eastward of Île du Petit Rouveau, and vessels should not anchor on it. Views at page 96.

- Directions.**—From the southward keep the chapel on Cap Sicié well open southward of Pointe Cougousset, 100° true, until Pont d'Aran is well open westward of Banc de la Cride beacon to pass out-  
30 side Basses de la Moulinière.

- Then steer north-north-eastward until the north extremes of Îles du Grand Rouveau and des Embiez are in line, when steer east-north-eastward, but do not approach the islands closely. To clear Basse Renette keep Rochers des Magnons beacon open north-westward of  
35 Rochers des Magnons until the north extreme of Île du Petit Rouveau bears 105° true; then pass northward of La Casserlane with Rochers des Magnons beacon open north-westward of Île du Grand Rouveau until Château des Embiez is open eastward of Île du Petit Rouveau.

- Anchorage.**—A good berth for a small vessel is with Île de Riou  
40 just open northward of Petit Rouveau, about 286° true, in 5 or 6 fathoms, but as Île de Riou is 20 miles distant and not always visible, a good position is in 6 fathoms, with the north extremes of Îles des Embiez and du Grand Rouveau in line, and the summits of Île de la Tour-Fondue and Pointe Cougousset in line.

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan, Baie de Bandol and Baie de Sanary, on 2819. Var. 10° 50' W.*

Small vessels ground on the bank between the islands and Le Brusq village, where the bottom is soft mud.

**Le Brusq village** has a church with a tower, and in front of it a small mole protects the fishermen's boats. 5

**Life-saving station.** — A rocket apparatus is stationed at Le Brusq.

*Chart 2608, Approaches to Toulon.*

**Banc Blauquières**, about 8 miles west-south-westward of Île du Grand Rouveau, has depths of from 52 to 100 fathoms, bottom 10 sand, gravel, and shells.

**The coast** of the mainland from close eastward of Île du Petit Gau (*Lat. 43° 4' N., Long. 5° 48' E.*) trends south-eastward  $3\frac{1}{4}$  miles to Pointe Garde Vieille, the south-eastern point of Cap Sicié; it is generally bold, but bordered by rocks in places. 15

**CAP SICIÉ** is a dark bold headland rising to two small peaks forming a saddle; the western peak is 1,181 feet high, and on it is the small chapel of Notre Dame de Sicié; on the eastern peak is a semaphore. Views on chart 2608.

Basse du Cap Sicié,  $1\frac{1}{2}$  cables south-eastward of Pointe Garde Vieille, is a rock with  $2\frac{1}{2}$  fathoms water, and 10 fathoms between it and the land. 20

**Clearing mark.**—La Grosse tour, seen over the beach at the head of Anse des Sablettes, open south-eastward of Les Frères leads south-eastward of the rock. 25

**Signal station.**—There is a semaphore, with a white house and tower, 36 feet high, on the eastern peak of Cap Sicié, 1,119 feet above high water.

**Les Frères**, 4 cables east-north-eastward of Pointe Garde Vieille, are two rocky islets, the northern one 66 feet, and the southern one 49 feet high, close together, with no passage between. Shoal water extends one cable from the shore north-westward of the islets, leaving a passage about  $1\frac{1}{2}$  cables wide with 8 fathoms water. The islets are steep-to. 30

*Plan 151, Toulon.* 35

**Anse des Sablettes.**—The coast from Pointe Garde Vieille trends north-eastward  $2\frac{1}{2}$  miles to the head of Anse des Sablettes, and falls to the low, sandy, narrow isthmus which separates the bay from Baie du Lazaret to the north-eastward. The beach extends rather more than half a mile east and west, and shoal water borders the shore to the distance of nearly 2 cables. Le Clapier, a rock with  $1\frac{1}{2}$  fathoms water, and from  $2\frac{1}{4}$  to 3 fathoms around, is situated about 40

*General charts 2608, 2607, 1780, 2158a, 449.*



*Plan 151, Toulon. Var. 10° 50' W.*

- 1½ cables off the eastern shore of the bay. There is a large bathing establishment on the beach. The bay affords temporary anchorage with north-east winds in from 8 to 11 fathoms, sand and weeds, good  
 5 holding ground, but Sèche de Saint Elme, a rocky patch with 4¾ fathoms water, lying 3½ cables south-westward of Pointe Saint Elme, on which is a fort, on the east side of the bay, should be avoided. The anchorage should be left so soon as the mistral ceases.

- Water can be obtained from wells on the beach at Les Sablettes and  
 10 at Saint Elme.

**Beacons.**—A beacon tower, painted black and white in horizontal bands, stands on the rocks off a point, with a battery on it, on the western side of the bay; there is a similar beacon on the rocks off Pointe Marvive, about 4 cables to the north-eastward.

- 15 **Telegraph cable.—Beacons.**—The direction of a telegraph cable landed at the head of the bay is indicated by two beacons, each painted blue and white in horizontal bands and surmounted by a white disc, which in line bear 24° true. Anchorage is prohibited in the vicinity.

- 20 **Pointe de Marégau** (Marigot), 6½ cables south-eastward of Pointe Saint Elme, is the eastern entrance point of the bay; rocks and shoal water, on which the sea breaks, extend one cable off it.

**Beacon.**—A beacon, painted black and white in horizontal bands, stands on the rocks off the point.

- 25 **The coast** from Pointe de Marégau trends east-north-eastward and east-south-eastward 1½ miles to Pointe Rascas, and is cliffs with a small beach at the head of Baie de Cavalas or de Saint Joseph; the 5-fathom line is generally distant about half a cable from it, except  
 30 at the head, where it is distant 1½ cables. Shoal water and rocky ground, on which the sea often breaks, extend one cable southward of Pointe Rascas.

*Chart 2608, Approaches to Toulon.*

- Shoal.—Buoy.**—A shoal with 4¼ fathoms water lies about 2½ cables south-westward of Pointe Rascas, and the water over it is  
 35 discoloured. A black conical buoy, surmounted by a cylinder, is moored on the south-eastern side of the shoal.

*Plan 151, Toulon.*

- LIGHT.**—A light is exhibited, at 194 feet above high water, from a square grey turret with a main building, 41 feet high, on a hill  
 40 about 150 yards within Pointe Rascas.

**Cap Cépet** (Sepet) (*Lat. 43° 4' N., Long. 5° 57' E.*), 1½ cables north-eastward of Pointe Rascas, is the south-eastern point of the

*General charts 2608, 2607, 1780, 2158a, 449.*

No. 1173.—RASCAS POINT—AMENDED POSITION AND DEPTH OF SHOAL  
SOUTH-WESTWARD OF.

*Position.*—At a distance of about one cable, south-westward, from position shown on charts and 4 cables,  $215^{\circ}$  (*S.  $46^{\circ}$  W. Mag.*), from Cape Sepet light on Rascas point.  
Lat.  $43^{\circ} 03\frac{3}{4}'$  N., long.  $5^{\circ} 56\frac{1}{2}'$  E.

*Depth.*— $2\frac{1}{2}$  fathoms, instead of  $4\frac{1}{4}$  fathoms as hitherto shown on the charts.

*Remarks.*—This shoal, together with the black buoy marking it, is to be moved on the charts to the position given above, and the depth amended accordingly.

*Variation.*— $11^{\circ}$  W.

Chart No. 2608.

Med. 2, p. 72.

2 k

Chart No. 2602  
Tromsø, —11° W.

Med. 2

depth amended accordingly.  
Remarks—This sheet, together with the black book marking it, is to be  
moved on the charts to the position given above, and the  
charts.  
Depth—24 fathoms, instead of 44 fathoms as indicated shown on the  
charts.  
Lat. 13° 03' N., long. 6° 56' E.  
Note. From Cape Sagel light on Rosas point  
position shown on charts and a capoe 216° (21. 30° W  
position—At a distance of about one cable, south westward, from  
South Westward of  
No. 1163. Rosas Point—Altered Position and Depth of Shoal.

*Plan 151, Toulon. Var. 10° 50' W.*

**Presqu'île de Cépet.** The coast trends north-eastward about 4 cables from the cape to Pointe du Canier, and is cliffs of from about 130 to 165 feet high, with deep water half a cable distant.

**Signal station.**—There is a semaphore, a white house and tower, 36 feet high, on the summit, 426 feet high, of Presqu'île de Cépet, about three-quarters of a mile northward of Pointe Rascas. 5

**Pointe du Canier.—Beacon.**—A rocky ledge projects about half a cable from this point, and on it is a beacon tower painted black and white in horizontal bands. 10

**La Galette,** a rock which dries one foot, lies about 2 cables northward of Pointe du Canier and a quarter of a cable off-shore.

**Anchorage.**—There is anchorage, sheltered from the north-westward, in from 5 to 10 fathoms, sand and weeds, about one cable off the shore of the small Anse des Roseaux, situated between Pointe du Canier and La Galette. It is frequented by vessels bound to Toulon during strong north-west winds. 15

**RADES DE TOULON.**—The entrance to Rades de Toulon is between Cape Cépet and Pointe de Carqueiranne, 3 miles to the eastward, and the roads extend about 5 miles north-westward; Grande rade is northward of the eastern part of Presqu'île de Cépet, and Petit rade is within and separated from it by the Grande jetée, which extends 8 cables southward from La Grosse tour, on the inner northern point of Grande rade, and includes Baie du Lazaret, Rade de l'Éguillette, and Baie de la Seyne. Grande rade comprises Anse du Creux Saint Georges, on the south, and Rade des Vignettes, on the north. 20 25

**Submarine vessels exercising.—Fairway reserved for traffic.**—When the square flag, upper half red, lower half yellow, is hoisted at the signal stations, or by the vessel escorting submarine vessels, indicating that the latter are exercising submerged, vessels entering or leaving Port de Toulon are requested to use the fairway, in which submarine vessels are prohibited from exercising submerged, limited as follows:— 30

On the north, by the alignment of Val Mer, on the west shore of Baie du Lazaret, and the lighthouse on the south end of Grande jetée. 35

On the south, by the alignment of the Biological laboratory, near Val Mer, and the lighthouse on Jetée de Saint Mandrier.

On the east, by a line between Tour du Canier and Cap Brun. 40

**The coast** from La Galette (*Lat. 43° 4' N., Long. 5° 57' E.*) trends north-westward about 8 cables to a point from which Jetée de Saint Mandrier extends 430 yards northward. Saint Mandrier

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

hospital is on the shore westward of the jetty; its chapel is round, with columns, and in front of the hospital is a little basin with 10 feet water in the middle, which is used by the boats running between

6 Toulon and Saint Mandrier.

**Anse du Creux Saint Georges** (Cros Saint Georges), westward of Jetée de Saint Mandrier, is half a mile deep, with 10 fathoms water in the entrance, but quickly shoals to 2 fathoms and less water; it affords anchorage to small craft, and is much frequented  
10 by fishing vessels. A wharf and factories have been or are being erected on the west shore of the bay. A jetty extends northward 100 yards from Pointe de la Vieille, the western entrance point of the bay.

**Petite rade.**—Grande passe, the principal entrance to Petite  
15 rade (properly Rade de Toulon), passes northward of the end of Jetée de Saint Mandrier, southward of the end of Grande jetée, and northward of the end of Jetée de la Vieille; it has a least width of a quarter of a mile, with depths of from 10 to 21 fathoms in the fairway. Petite passe, a passage 170 yards wide, between Jetée de la  
20 Grosse tour, which extends about 150 yards southward from a little eastward of La Grosse tour, and the north end of Grande jetée, is available for vessels of less than 9 feet draught.

**Depth.**—The depth in the eastern part of Petite rade, to within 1½ cables from the shore, is at least 5 fathoms, bottom soft mud.

25 **LIGHTS.**—**Jetée de Saint Mandrier.**—A light is exhibited, at 54 feet above high water, from a white iron turret on a building, 42 feet high, on the end of Jetée de Saint Mandrier.

**Grande jetée.**—A light is exhibited, at 44 feet above high water, from a white turret with house, 32 feet high, on the south end  
30 of Grande jetée (*Lat. 43° 5' N., Long. 5° 55' E.*).

**Petite passe.**—A light is exhibited, at 51 feet above high water, from a round white turret, 22 feet high, on the south end of Jetée de la Grosse tour, and on the north side of Petite passe.

**Jetée de la Pointe de la Vieille.**—A light is exhibited, at  
35 45 feet above high water, from a white turret with house, 32 feet high, on the head of Jetée de la Pointe de la Vieille.

A light is exhibited from the head of a mole off Tamaris, on the north-west shore of Baie du Lazaret, and also from a beacon on the east side of Sablettes canal entrance.

40 **Darse Vieille.**—A light is exhibited on each side of the entrance.

Two lights are exhibited from two pile structures, each surmounted by a board painted red and white in chequers, 330 and 440 yards, respectively, south-westward from the entrance to Darse Vieille, to mark works in progress.

*General charts 2608, 2607, 1780, 2158a, 449.*



*Plan 151, Toulon. Var. 10° 50' W.*

**Port de la Rode.**—A light is exhibited on the north side of the entrance, and on the east side of the port.

**Port de la Seyne.**—A light is exhibited on each side of the entrance. 5

**Buoys.**—Several white buoys are moored near the extremities of Jetée de Saint Mandrier, Grande jetée, and Jetée de la Vieille, and in Baie du Lazaret; they are used for mooring torpedo boats.

A large black conical buoy is moored on the north-east side of Basse de l'Éguillette in 5 fathoms water. 10

Two red mooring buoys mark the southern edge of the bank, eastward of Petite passe, and a white mooring buoy the southern edge, westward of the pass.

A large red conical buoy is moored, in 4 fathoms water, on the west edge of Banc de l'Âne, about  $2\frac{1}{2}$  cables south-westward of La Grosse tour, and a similar buoy, in  $4\frac{1}{2}$  fathoms water, on the west edge of the bank, about  $1\frac{1}{4}$  cables westward of La Grosse tour. 15

A green light-buoy, exhibiting a *white fred* light, moored  $2\frac{1}{4}$  cables northward of the outer end of the pier, about  $1\frac{1}{4}$  cables westward of Pointe de l'Éguillette, marks the southern limit of the area rendered dangerous by the remains of the battleship *Liberté*. A green conical buoy is moored southward, and a black conical buoy eastward of the wreck. 20

There are numerous mooring and other buoys in Petite rade, for which see the plan. 25

Buoys marked T are for warping; those marked D.P. are reserved for the Direction of the Port; P.F. on buoys means point fixed.

**Beacon.**—A low masonry beacon, surmounted by a black cannon and ball, stands in about 6 feet water, about one cable north-westward of La Grosse tour. 30

**Telegraph cable beacons.**—Two beacons, painted blue and white in horizontal stripes, and each surmounted by a white disc, stand on the shore near Fort de l'Éguillette, and in line,  $203^\circ$  true, mark the direction of a telegraph cable. The front beacon is 36 feet above high water, and is 59 feet from the rear beacon. Anchorage is prohibited in the vicinity of the cable. 35

**Baie du Lazaret.**—The shore from Pointe de la Vieille (*Lat.  $43^\circ 5'$  N., Long.  $5^\circ 55'$  E.*) trends west-north-westward 2 cables, to Pointe de la Piastre, and Baie du Lazaret extends about a mile south-westward from its entrance between Pointe de la Piastre and Pointe Balaguiier, nearly 6 cables north-westward; its head is Saint Elme hill, and Plage des Sablettes. There are depths of from 10 to  $3\frac{3}{4}$  fathoms in the entrance, and 3 fathoms 3 cables within, whence the bay shoals to its head. Vessels in quarantine anchor here; 40

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

anchorage is prohibited eastward of a line between **Pointe de la Piastre** and **Tour de Balaguier**. The lazaret is on the shore about 2 cables south-westward of **Pointe de la Piastre**, with a camber for landing.

**Swinging buoys.**—Seven buoys are moored westward of **Pointe de la Piastre**, where vessels adjust their compasses; this part of the bay has been dredged to a depth of 33 feet.

**Pointe Balaguier** has a fort on it, and the tower is conspicuous.

10 **Pointe de l'Éguillette**, about  $3\frac{1}{2}$  cables northward of **Pointe Balaguier**, is surmounted by a fort, and **Basse de l'Éguillette**, rocky, extends  $1\frac{1}{4}$  cables eastward of it.

**Baie de la Seyne and Petite rade.**—About  $6\frac{3}{4}$  cables eastward from **Fort de l'Éguillette** is **La Grosse tour**, and between is the entrance to **Baie de la Seyne** and **Petite rade**.

The shore from **Pointe de l'Éguillette** trends westward  $1\frac{1}{4}$  miles to the small **Port de la Seyne** (*Lat. 43° 6' N., Long. 5° 53' E.*) and town, and is bordered by shallow water. The port is a basin  $1\frac{1}{4}$  cables long, and about half a cable broad, with from 10 to 18 feet water, and 20  $29\frac{1}{2}$  feet alongside its west quay; a channel with  $29\frac{1}{2}$  feet water leads through the shallow bank to the basin, and is marked by buoys. All the inner part of **Baie de la Seyne** is a shallow flat; the centre of **Fort Napoleon**, on a hill 269 feet high, 8 cables westward of **Pointe Balaguier**, bearing 192° true, leads eastward of it. On the shore eastward 25 of **Port de la Seyne**, on land reclaimed from the sea, are extensive ship-building yards with slips and docks, the works of the *Compagnie des Forges et Chantiers de la Méditerranée* occupying a water frontage of half a mile, where some of the largest vessels of the French navy have been built.

30 From **Port de la Seyne** the shore trends northward about 8 cables, and then eastward, with several piers extending off it, about 2 miles, when it turns south-south-westward about 9 cables to **La Grosse tour**, on the east point of the entrance to the inner bay.

**Rade de l'Éguillette** is northward of the shoal water extending from the shore westward of **Pointe de l'Éguillette**; the anchorage being about one quarter of a mile from the shore in from 6 to 10 fathoms, mud and weeds.

**Spoil ground.—Buoys.**—A provisional place for depositing dredged material is situated in **Baie de la Seyne**, about 6 cables north-eastward from the entrance to **Port de la Seyne**, and is marked by 40 six black buoys.

**Petite rade** is the principal anchorage, and it has been dredged to a depth of 6 fathoms westward to the buoys southward of **Milhaud**.

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

**Banc de l'Âne.**—On La Grosse tour is a flagstaff, and the point is surrounded by a flat of shoal water extending  $1\frac{1}{2}$  cables from the shore. The bank with less than 5 fathoms water extends to a point  $5\frac{1}{2}$  cables southward of La Grosse tour, and  $1\frac{3}{4}$  cables westward of Grande jetée. 5

**Port de Toulon.—Arsenal.**—The Port de Toulon is divided into Port militaire and Port de la Rode. The Port militaire, reserved for the French navy, comprises all the north and west part of Petite rade, as well as its eastern shore. It includes Darses de Missiessy, de Castigneau, Neuve, and Vieille, and is furnished with all which constitutes an arsenal of the first class. There are several building slips and workshops in Mourillon, a suburb of Toulon, on the east shore of the rade. Darses de Missiessy, de Castigneau, and Neuve have depths of 33 feet water. 15

A petroleum basin is preparing southward of the arm on the western side of Darse de Missiessy.

Darse Vieille (*Lat. 43° 7' N., Long. 5° 56' E.*), though part of the arsenal, is available for commercial purposes, but the quays on the western side are reserved for vessels of war; Chaine Vieille, the entrance, is 164 feet wide, with 29 feet water, and the basin has depths of from 13 to 29 feet. 20

**Port de la Rode** is situated on the north-eastern side of Petite rade, between Darse Vieille and the workshops at Mourillon. It is irregular in shape, about 246 yards long, and 164 yards broad, with depths of  $3\frac{3}{4}$  fathoms in the middle, and  $2\frac{3}{4}$  fathoms alongside the quays; the channel leading to the port has  $3\frac{3}{4}$  fathoms water. 25

**Anchorage.**—There is anchorage under different circumstances in the several Rades de Toulon.

Vessels of war should not enter Petite rade until an official has been sent from the station of Jetée de Saint Mandrier to point out the anchorage. 30

Merchant vessels have no right to use the mooring buoys.

Vessels seeking shelter anchor in Rade de l'Éguillette.

Vessels about to enter, or on leaving, Port de la Rode, may anchor, at a less distance than the vessel's length, from the point of the bastion between the port and Darse Vieille. 35

Anchor in Anse du Creux Saint Georges southward of the line from Pointe de la Piastre through the outer end of the Jetée de la Vieille.

Anchor in Baie du Lazaret south-westward of the line between Pointe de la Piastre and Fort de Balaguier. 40

**Prohibited anchorage.**—Anchorage is prohibited within a quadrilateral determined thus: On the north, a line drawn 90° true,

*General charts 2608, 2607, 1780, 2158a, 449.*



*Plan 151, Toulon. Var. 10° 50' W.*

9 $\frac{6}{10}$  cables, from Tour de Balaguier; on the east, a line drawn 147° true, 7 $\frac{3}{4}$  cables, from the eastern extremity of the north limit; on the south, a line drawn from Pointe de la Piastre through  
5 the outer end of Jetée de la Vieille, 96° true, to the southern extremity of the east limit; on the west, a line drawn from Pointe de la Piastre to the southern angle of Fort de Balaguier.

The prohibited area is marked by pecked lines on the plan.

**Grande rade** extends from Grande jetée to Pointe de Carqueiranne, and comprises, on its northern side, Rade des Vignettes, Anse de Méjean, and Baie de la Garone.

The coast from Jetée de Grosse tour trends eastward 1 $\frac{1}{2}$  cables to Pointe de Pipady, which slightly projects, and then turns north-eastward half a mile to a nearly isolated point, on which is Fort Saint  
15 Louis, with a tower, whence the coast continues eastward 1 $\frac{3}{10}$  miles, and is higher, to Cap Brun. Fort la Malgue is on a hill, 3 cables north-eastward of Fort Saint Louis. The coast from Jetée de Grosse tour nearly to Cap Brun is bordered by a bank from 1 $\frac{1}{4}$  to 2 cables broad.

20 Port du Mourillon, westward of Fort Saint Louis, is small, and used by fishing boats and yachts. It is within a mole, near which it has a depth of about 1 $\frac{1}{2}$  fathoms, but shoals rapidly to the shore.

**Rade des Vignettes**, between Grande jetée and Cap Brun (Lat. 43° 6' N., Long. 5° 58' E.), affords good anchorage to vessels of  
25 all sizes, sheltered from north-easterly to westerly winds, with mud, sand, and weed bottom, and good holding ground, but it is necessary to get under way on a wind from seaward setting in.

**Buoys.**—Two white mooring buoys lie about one cable eastward of Grande jetée, and five lie about 4 cables from the shore south-  
30 ward of Fort la Malgue.

**Torpedo ranges.**—Six pairs of white barrel buoys mark a torpedo range which extends 112° true from a platform about 25 yards southward of the outer end of Jetée de la Grosse tour, on the north side of Petite passe, and the buoys are situated on either side of the  
35 range, at the following distances: 1st pair, 2 $\frac{3}{4}$  cables; 2nd pair, 5 $\frac{1}{2}$  cables; 3rd pair, 10 $\frac{3}{4}$  cables; 4th pair, 16 $\frac{1}{4}$  cables; 5th pair, 21 $\frac{1}{2}$  cables; and 6th pair, 3 $\frac{1}{4}$  miles. The buoys in each pair are from 40 to 100 yards apart, the distances increasing from the firing point.

Two pairs of similar buoys lie, one pair 100 yards northward, and  
40 the other pair 165 yards southward, of the range, at 4 $\frac{3}{10}$  miles from the end of the jetty.

A second range extends 70° true from a red buoy situated 2 $\frac{3}{4}$  cables, 33° true, from Grande jetée lighthouse; a white barrel buoy is moored 130 yards, 0° true, and a similar buoy the same distance, 180° true,

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

from the red buoy. A pair of white barrel buoys, 65 yards apart, are moored on either side of the range, 10 $\frac{1}{4}$  cables from the red buoy.

**Submarine vessels.—Caution.**—A square flag, the upper half red and the lower yellow, hoisted at La Grosse tour flagstaff, indicates that submarine vessels are exercising submerged in Rade des Vigettes, and that *Petite passe* is prohibited to all vessels and boats other than those taking part in the exercise or torpedo practice. 5

**Cap Brun** is 56 feet high, dark, and has a fort and battery on it; it is steep-to. 10

**The coast** from Cap Brun trends eastward one mile to Pointe Sainte Marguerite, and is steep-to except in the bays. Anse de Méjean, eastward of Cap Brun, is small, and used by fishing vessels, but it is dangerous in winter.

**Pointe Sainte Marguerite** projects but little; it is 213 feet high, whitish, and very steep. 15

*Chart 2608, Approaches to Toulon.*

**Baie de la Garone (Garonne)**, between Pointe Sainte Marguerite and Pointe de Carqueiranne, 1 $\frac{3}{4}$  miles south-eastward, affords anchorage with easterly winds, but the sea is very heavy with fresh southerly or south-westerly winds. 20

**Pointe de Carqueiranne** (Carqueyranne) (*Lat. 43° 5' N., Long. 6° 1' E.*) is a steep reddish rock, with trees on its summit; Le Col Nègre, 1 $\frac{1}{4}$  miles north-eastward, is 984 feet high.

**Currents.**—The currents in this locality are generally weak and very irregular, but usually follow the direction of the wind; westerly currents are more frequent and stronger than easterly currents. The currents attain their greatest rate near the land. 25

Between Cap Sicie and Cap Cépet, the current runs along the coast, setting almost always westward, and increasing after heavy weather, whatever may have been the direction of the wind; its rate may then exceed one or 1 $\frac{1}{2}$  knots, but in ordinary weather it is scarcely felt. 30

**Directions.**—Mont de Caumes, or des Pomets, about 3 $\frac{1}{2}$  miles north-north-westward of Toulon, round, and 2,612 feet high; Mont Coudon, about 4 miles north-eastward of Toulon, 2,284 feet high, and presenting a steep slope to the eastward; Cap Sicié; Pointe Rascas lighthouse; Cap Cépet; Mont Faron, about a mile north-eastward of Toulon, showing bare red peaks 1,709 feet high; Le Col Nègre; and Presqu'île de Giens, which terminates south-westward at Pointe Escampobariou in high cliffs, are conspicuous in the approach to Toulon. 35 40

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

For Petite rade steer northward into the Rades de Toulon, giving a berth of 2 cables to the coast of Presqu'île de Cépet, until the lighthouse on the south end of Grande jetée is well open northward of the  
5 lighthouse on the north end of Jetée de Saint Mandrier. Then steer to pass about a cable northward of Jetée de Saint Mandrier, and between Jetée de la Vieille and Grande jetée.

From about a cable south-westward of the end of Grande jetée steer about 340° true, which leads westward of Banc de l'Âne and the shoal  
10 water extending southward from it, and about 1½ cables eastward of Basse de l'Éguillette buoy. If the buoy is not in position, Saint Elme fort open eastward of Fort de Balaguier leads eastward of Basse de l'Éguillette. When Pointe de Pipady is in line with Cap Brun steer north-westward into Rade de l'Éguillette, or north-eastward into  
15 Petite rade, in which case do not open any part of Les Frères, seen over the low sandy Isthme des Sablettes, south-eastward of Fort de Balaguier, to clear the shoal water off the coast of Mourillon.

At night the lights are sufficient guides.

**Pilots.**—A pilot will board a vessel in Grande rade on the pilot  
20 signal being made.

**Tugs.**—There are a few tugs available.

**Time signal.**—A black ball, 2 feet in diameter, is hoisted five minutes before the signal at the signal staff of the Naval observatory (*Lat. 43° 7' N., Long. 5° 55' E.*), 120 feet above the sea, and 107 feet  
25 above the ground; it is dropped 6 feet by hand at 22h. 00m. 00s. Greenwich mean time. The ball is immediately re-hoisted, and the signal repeated at 22h. 02m. 00s. Greenwich mean time.

If the signals are incorrect, the ball is re-hoisted as quickly as possible after the second signal, and kept up for five minutes if the  
30 first signal is incorrect, for ten minutes if the second signal is incorrect, and for fifteen minutes if both signals are incorrect. These are not to be regarded as time signals.

A red and white triangular flag is hoisted on a small yard near the ball on the 10th, 20th, and last days of each month when observations  
35 have been made on the previous evening. If hoisted on other days it signifies that the apparatus is being adjusted.

**Winds.**—North-westerly to westerly winds prevail on this coast, and often blow with such violence that vessels are unable to carry sail; sailing vessels should then obtain shelter in a convenient anchorage.  
40 The climate is said to be dry.

**The town** of Toulon, Telo Martius of the Romans, situated north-eastward of Petite rade, is the most important naval station in France after Brest, and a fortress of the first class. Its longer side faces the sea, and the town rises gradually to the northward, the ramparts

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

extending to the foot of the mountains, which are arid and bare. Toulon is divided into the old and new towns; both are tolerably well-built, but the streets of the former are narrow and crowded, and all the squares, except one, are small and irregular. Rue de Lafayette, the principal street, intersects the town, and is partially planted with trees; it is the seat of the market. 5

The town hall, Sainte Marie Majeure church (once the cathedral), three other churches, the court-house, military arsenal, naval, military, civil and foundling hospitals, and a communal college, are the chief public buildings, but the streets are narrow and the shops inferior. The suburbs are greatly increasing. 10

The population in 1911 was 103,549.

A British Vice-Consul is stationed at Toulon (*Lat. 43° 7' N., Long. 5° 55' E.*). 15

**Trade.**—The principal imports are coal, coffee, iron manufactures, timber, wheat, and wine; the exports are bauxite, cork waste, and scrap iron.

**Shipping.**—In 1913, 150 steam vessels, of 465,474 tons, and 4 sailing vessels, of 389 tons, entered the Port of Toulon. Of the steam vessels, 70, of 367,420 tons, were British. 20

**Supplies.**—Fresh provisions are plentiful, but a day's notice is required for large quantities of bread. Good water, which should be filtered for drinking, can be obtained from stand-pipes placed near the quays, or taken off to vessels in a tank vessel. 25

**Coal.**—There is no stock in private hands, and if required, coal is obtained in large quantities from Marseille by giving three days' notice. A large stock of patent fuel is maintained by the French Government, and the fuel can be obtained by special permission from Paris. Coaling is done from lighters. 30

**Repairs** can be executed by the Compagnie des Forges et Chantiers de la Méditerranée, at La Seyne.

**Docks.**—See Appendix I.

**Hospitals.**—There are a civil hospital and two naval hospitals, of which one is at Saint Mandrier. The hospital at Saint Mandrier is a fine building, and has 2,000 beds. 35

**Communications.**—Toulon is on the Paris, Lyons, and Mediterranean Railway, and there is a branch from Toulon, through Hyères, to Saint Raphael. A steamboat goes to Porquerolles three times a week, the passage taking about  $2\frac{3}{4}$  hours; from Porquerolles she goes to Port Cros, and then returns to Porquerolles and Toulon almost immediately. 40

*General charts 2608, 2607, 1780, 2158a, 449.*

*Plan 151, Toulon. Var. 10° 50' W.*

**Wireless telegraph.**—A wireless telegraph station is established at Toulon Naval School; it is open in cases of distress only. The call letters are F.U.E.

5 *Chart 2608, Approaches to Toulon.*

**GOLFE de GIENS**, the entrance to which is between Pointe de Carqueiranne and Pointe de Pain de Sucre, the western extreme of Presqu'île de Giens, about 4 miles south-eastward, extends eastward about 3 miles, and is open westward. The north shore trends eastward  
10 from Pointe de Carqueiranne, and for about 2 miles is the steep side of Le Col Nègre; then it becomes low, and a valley separates Le Col Nègre from Morne du Paradis, 982 feet high, and Collines de Fra-baud.

Port des Salettes, eastward of Pointe Péno, which is situated  
15 2½ miles eastward of Pointe de Carqueiranne, and has a little fort on it, is a small harbour for fishing vessels, protected by a mole.

**Light.**—A light is exhibited from a metal column, 18 feet high, on the end of the mole.

**Anchorage.**—There is anchorage about 3 cables southward of  
20 Salettes, in from 8 to 10 fathoms, good holding ground, but it is quite open to south-west winds.

**The shore** between Salettes and Isthme de Giens is little cliffs which rise to well-cultivated hills. About 1½ miles eastward of Salettes, and near the sea, is Château San Salvadour, a large building with a  
25 turret.

The east shore of the bay, or the west coast of the Isthme de Giens, is a low beach from which rocks and shoal water extend nearly a mile.

Isthme de Giens extends southward about 2¼ miles, with a breadth of from three-quarters to 1¼ miles, and it is about 15 feet high. On its  
30 northern part are the saltworks of Pesquiers, which have two chimneys, and in its southern part is the large Étang des Pesquiers.

**Presqu'île de Giens**, extending east and west 3½ miles, is connected to the main by Isthme de Giens; it is about half a mile broad, 381 feet high, and uneven. View on chart 2608. In the  
35 middle is a village, the church of which has a spire; Château de Giens, in ruins, on which is a white pyramidal beacon, is also in the village. The north coast of the western part of the peninsula is bordered by numerous rocky patches, which render landing difficult. Several islets and rocks lie off the north-west part of the peninsula; there is no  
40 passage inside them. Rade de Giens, the south-eastern part of the gulf, affords shelter, except from westerly and south-west winds, in 6 fathoms, sand and weeds.

**Les Fourmigues** (*Lat. 43° 2' N., Long. 6° 4' E.*), three-quarters of a mile westward from the western of the rocks off the north-western

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 50' W.*

part of the peninsula, are two black rocks, 21 and 46 feet high, the eastern being the larger. There are 10 fathoms water close southward of the rocks, and 16 to 24 fathoms between them and the rocks to the eastward. A small rocky patch, with 11 fathoms water and from 29 to 39 fathoms around, lies half a mile north-westward of Les Fourmiges. 5

**Pointe Escampobarieu**, the south-western extreme of the peninsula, about 6 cables south-south-eastward of Pointe de Pain de Sucre, is 367 feet high, greyish, bold, and steep-to; a sailing vessel should not close the point, as near it there are often violent squalls off the land, calms, eddies, and a confused sea. 10

**Signal station.**—There is a semaphore, 33 feet high, on the summit, about half a mile north-eastward of the point, and 420 feet above high water. 15

**The south coast** of the peninsula is very much indented and skirted by rocks and shoals. Baie du Niel lies about  $1\frac{1}{2}$  miles eastward of Pointe Escampobarieu, between Pointe des Morts and Pointe Madame, both of which, as well as Pointe de Terre-Rouge, about half a mile further south-eastward, are foul. Château de Giens is northward of the bay. On the western side of the bay is a mole, 80 yards long, with 20 feet water at its outer end. Small vessels anchor in the bay with off-shore winds. 20

**Iles du Grand and du Petit Ribaud.**—Ile du Grand Ribaud (*Lat. 43° 1' N., Long. 6° 9' E.*), 4 cables south-westward of Pointe de Terre-Rouge, is 171 feet high, triangular in form, and about 4 cables in extent; its south-western side is bold and clear, but its south extreme terminates in a large rock, and is surrounded by shoals, L'Écueil de Ribaud, the outer of which, situated about half a cable south-eastward of the large rock, has 5 feet water. Between the island and Pointe de Terre-Rouge is Petit Ribaud, 59 feet high, northward of which is Le Ribaudon, a rock 19 feet high; both are surrounded by rocks awash to the distance of half a cable. There is a narrow channel, with 13 feet water, between Pointe de Terre-Rouge and Le Ribaudon. The channel between the reefs off Le Grand and Le Petit Ribaud is about one cable wide, and is used by vessels of 16 feet draught with smooth water. The deepest water is near Le Petit Ribaud. 30 35

**LIGHT.**—A light is exhibited, at 112 feet above high water, from a white square tower, with a white main building, 45 feet high, near the south point of Ile du Grand Ribaud. 40

**The coast** of Presqu'île de Giens from Pointe de Terre Rouge trends east-north-eastward nearly  $1\frac{1}{2}$  miles to Cap de l'Esterel. A

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

narrow point projects about a cable southward from the land, about a quarter of a mile eastward of Pointe de Terre-Rouge, and on its extreme, which is steep-to, is Fort du Pradeau.

- 5 **Rade du Pradeau**, between Fort du Pradeau and Cap de l'Esterel, affords anchorage with off-shore winds in 7 fathoms, sand and weeds, with Pointe Pradeau in line with Pointe Escampobariou, and Porquerolles lighthouse in line with the battery on Pointe de Bon Renard.

- 10 **Telegraph cables.—Beacons.**—Three beacons, forming two alignments indicating a sector within which telegraph cables are landed, stand on the south side of Presqu'île de Giens. The first alignment, south-westward of which anchorage is prohibited, is of two beacons painted blue and white in horizontal bands; the front beacon, 15 surmounted by a rectangle, 33 feet high, is near the sea at the base of Fort du Pradeau, and the rear beacon, surmounted by a white disc, is situated 299° true, 52 feet from the front beacon.

- The second alignment, eastward of which anchorage is prohibited, is of a front beacon, surmounted by a white triangle, and the rear 20 beacon of the first alignment, situated 343° true, 77 feet from the front beacon.

- Cap de l'Esterel** (*Lat. 43° 2' N., Long. 6° 10' E.*), the east extreme of Presqu'île de Giens, is low, and close off it is an islet 26 feet high, but there is no passage between. Pointe de la Badine is 25 about a quarter of a mile north-westward of the cape.

**Buoys.**—Two white mooring buoys are moored about 3 cables southward from the small islet off Cap de l'Esterel.

- RADE D'HYÈRES.**—Île Brégançon lies about 7½ miles east-north-eastward of Cap de l'Esterel, and Rade d'Hyères extends 30 3½ miles north-westward between them.

- Rade d'Hyères is partially sheltered by Îles d'Hyères and the mainland, but south-east and south-west winds send a heavy sea through Grande and Petite passes, and off-shore winds are at times very violent; there are, however, several good anchorages for vessels of all 35 sizes.

- The west shore** of the road, or the east coast of Isthme de Giens, trends northward, and at the distance of 2 miles northward of Pointe de la Badine is a narrow canal, available for craft of less than 3 feet draught, leading to Étang des Pesquiers. A small wharf 40 extends from its entrance, and there are several mooring buoys off it. Near the canal are some houses, including a chapel and a Custom-house. One mile to the northward is La Plage village, where there is a station on the branch line from Hyères to Pothuau. About 1½ miles north-westward of La Plage is the chapel of Notre Dame d'Hyères,

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

with a square tower surmounted by a statue of the Virgin, on a hill, 322 feet high. Shoal water of less than 3 fathoms extends about 4 cables off the coast from Pointe de la Badine to the northward.

**Rade de la Badine**, about a mile north-eastward of Cap de l'Esterel, affords good shelter from westerly winds, in 7 fathoms, sand and mud. 5

A bank, with depths of from 3 to 5 fathoms, extends about one mile northward from Pointe de la Badine.

**Torpedo range.**—There is a torpedo range in Rade de la Badine, and it is marked thus:—A mooring buoy lies about half a mile north-eastward of Cap de l'Esterel, with four buoys placed 1½ cables north-eastward, south-eastward, south-westward, and north-westward of it. Four pairs of buoys lie 5½ cables, one mile, 2½ miles, and 3½ miles northward from the mooring buoy. 10 15

**Life-saving station.**—A life-saving gun is stationed at Les Pesquiers Custom-house.

**The town of Hyères**, about 2½ miles north-westward of La Plage, is situated at the southern base (the old town being on the slope) of a blackish hill, 656 feet high, and crowned by the ruins of an ancient fortress; its streets are steep, narrow, crooked, dark, and badly paved; on the outskirts, however, are several hotels and many pretty villas. Hyères is said to have once been a seaport; at present the plain between it and the sea is covered with orange plantations, vineyards, and olive grounds. There are manufactures of orange-flower water and other perfumes, brandy, oil, silk twist, and a trade in olives, fruit, salt, and wine. Under the name of Arcæ, it was one of the colonies anciently established by the Greeks on the shores of the Mediterranean; the Romans called it Hieros. 20 25

Owing to the mildness and dryness of the climate it is much frequented by invalids in winter. The population was 21,339 in 1913. 30

A British Vice-Consul is stationed at Hyères.

**The shore** from La Plage (*Lat. 43° 5' N., Long. 6° 9' E.*) trends north-eastward and continues low about 2 miles to the entrance to Rivière Gapeau, where there is a small low tower. 35

**Beacons.**—Two wall beacons, painted half white and half red, are situated on the shore near La Plage railway station, and a similar beacon at the entrance to Ruisseau le Roubaud, on Le Ceinturon beach, about a mile north-eastward; there is also a black square painted on the railway bridge over the stream. They mark a measured base for ascertaining the speed of torpedo vessels; each end is also marked by a white buoy. 40

*General charts 2607, 1780, 2158a, 449.*



*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

**La Plage des Salins** commences eastward of the Gapeau, and borders Étang de Faubregas (Faublegas), a distance of about  $1\frac{3}{4}$  miles; the étang has been converted into saltworks, which are marked from  
5 seaward by the heaps of salt and storehouses.

**Port Pothuau** (or des Vieux Salins d'Hyères), about half a mile north-eastward of the entrance to the Gapeau, is a small port within two jetties; there is a depth of 11 feet in the entrance, whence it decreases to the shore. The port is reserved for vessels of the French  
10 navy, but merchant vessels of less than 10 tons may be permitted to use it. A landing place, reserved for the boats of the navy, is an iron jetty near the railway station of the branch line from Hyères.

**Light.**—A light is exhibited from a post on a grey watch tower on the end of the east jetty.

15 **Life-saving station.**—A rocket apparatus is stationed at Port Pothuau Custom-house.

**Rade des Salins**, off La Plage des Salins, is the best anchorage in Rade d'Hyères with north-easterly winds. Anchor southward of the buildings on the beach and eastward of the entrance to Rivière  
20 Gapeau, in about 10 fathoms, mud, with Ilot Petit Sarraulier just open eastward of Ile de Porquerolles, and Cap Bénat semaphore in line with Fort de Brégançon. The shoal water off the entrance to Rivière Gapeau is extending seaward.

25 **Mooring buoys.**—Several mooring buoys lying southward of Port Pothuau are reserved for vessels-of-war.

**The shore** from Port Pothuau trends eastward, and continues low, about  $2\frac{3}{4}$  miles, to Les Bormettes, where the hills close the sea.

30 **Light.**—A light is exhibited from the end of a jetty, situated near a Custom-house on the beach, eastward of the mouth of Torrent le Pansard, and about half a mile west-south-westward of Les Bormettes.

35 **Les Bormettes.**—The works of Les Bormettes are marked by two chimneys, and there are two castles to the north-westward; at night the works are lit by electric lights. A wooden pier extends from the works, and a narrow channel, with 10 feet water in the middle, leads to it, about 3 cables through the shore bank, and is marked by buoys.

40 **The shore** from Pointe de l'Argentière (*Lat. 43° 7' N., Long. 6° 16' E.*), situated close eastward of the little Port des Bormettes, trends south-eastward 3 miles to Ile Brégançon, and is beaches separated by rocky points, which are prolonged about a quarter of a mile seaward by rocks and islets; the land is moderately high.

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

Ilot de Léoube, one cable off-shore, about three-quarters of a mile from Pointe de l'Argentière, is 40 feet high.

**Batterie des Maures.**—An artificial islet of reinforced concrete, 90 feet long, 40 feet wide, and 20 feet high, has been constructed, in 5 fathoms water, about 3 cables south-south-eastward of Ilot de Léoube; it is used in connection with a torpedo range. 5

**Light.**—A light is exhibited from the islet.

**Torpedo range.**—There is a torpedo range westward of the artificial islet, and it is marked by pairs of buoys placed at distances of  $1\frac{1}{10}$  cables,  $3\frac{2}{10}$  cables,  $5\frac{4}{10}$  cables,  $8\frac{1}{10}$  cables,  $1\frac{1}{10}$  miles, and  $1\frac{6}{10}$  miles or  $2\frac{2}{10}$  miles from the islet. The buoys in each pair are 100 yards apart. 10

**Prohibited anchorage.**—When torpedo practice is in progress a red flag is hoisted at Batterie des Maures and on the western target buoy, or by a boat anchored in the direction of the firing. During the practice it is forbidden to stop, fish, or navigate within the space defined by the under-mentioned limits:— 15

On the north, by a line drawn westward from Ilot de Léoube to a black beacon on the western shore of the bay. 20

On the south, by a line drawn westward from the northern Ilot de l'Estagnol to a red and white beacon on the western shore of the bay.

On the west, by a line drawn southward from the southernmost house in the village west of Le Bastidon to the Rochers des Mèdes, Ile de Porquerolles. 25

On the east, by a line drawn south-eastward from the chimney, situated about one mile northward of Bormettes, through Batterie des Maures.

**Pointe de Léoube** (*Lat. 43° 6' N., Long. 6° 17' E.*), about 3 cables south-eastward of the artificial islet, projects about a cable southward, and is a white cliff. 30

**Anse de Brégançon.**—The two Ilots de l'Estagnol, half a mile east-south-eastward of Pointe de Léoube, mark the north-western side of Anse de Brégançon, which extends thence  $1\frac{1}{2}$  miles south-eastward to Ile Brégançon. Ilot du Jardin, 16 feet high, is situated in the north part of the bay, and there is an isolated rock, with  $3\frac{1}{2}$  fathoms water, a quarter of a mile south-westward of it. Shoal water extends about 2 cables off the shore of the bay. Château Roy (de Brégançon) and a battlemented tower are situated on the north shore. 35 40

**Anchorage**, sheltered from north-easterly and northerly winds, can be obtained, in about 9 fathoms water, mud and weeds, southward of Château Roy, with the west extreme of Ile Brégançon in line

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

with the south-west extreme of *Île du Levant*. There is also anchorage in from about 10 to 15 fathoms, southward of *Pointe de l'Argentière*, and westward of *Île Brégançon*.

- 5 **Île Brégançon** is about a cable in extent, 170 feet high, rocky, steep on all sides, and connected to the shore by a mole; on it are the ramparts of a fort, the buildings of which are conspicuous.

**Beacon.**—There is a spindle beacon, surmounted by a ball, on a rock about 10 feet high, eastward of *Île Brégançon*, and about 60 yards  
10 southward of the mole.

**Mooring buoys.**—Five mooring buoys for the use of vessels at firing practice lie about one mile southward of *Île Brégançon*.

- The coast** from *Île Brégançon* trends eastward nearly  $2\frac{1}{4}$  miles to *Cap Bénat*; it is high, and steep to at the distance of one cable.  
15 **Pointe de la Tripe** lies one mile eastward of *Île Brégançon*, and eastward of it is the small *Baie de la Tripe*.

**Telegraph cables.—Beacons.**—Two alignments of beacons, indicating a sector within which telegraph cables are landed, stand on the shore of *Baie de la Tripe*. The first alignment, westward of which  
20 it is forbidden to anchor, is of two beacons, painted blue and white in horizontal bands; the front beacon, surmounted by a white rectangle, is 26 feet high; the rear beacon, surmounted by a white disc, is situated about 30 feet,  $320^\circ$  true, from the front beacon.

The second alignment, eastward of which anchorage is prohibited,  
25 is of a front beacon, surmounted by a white triangle, and the rear beacon of the first alignment, 36 feet,  $14^\circ$  true, from the front beacon.

**Pointe Blanche** (*Lat.  $43^\circ 5' N.$ , Long.  $6^\circ 22' E.$* ), about three-quarters of a mile eastward of *Baie de la Tripe*, is the south point of  
30 *Cap Bénat*, and is conspicuous from its white rocks; shoal water extends about a cable off it.

**LIGHT.**—A light is exhibited, at 200 feet above high water, from a white masonry tower, 47 feet high, behind the battery on *Pointe Blanche*.

- 35 **Signal station.**—There is a semaphore, white house and tower, 33 feet high, on the summit of *Cap Bénat*, 607 feet high, situated about 3 cables north-westward of the lighthouse.

**Cap Bénat**, 4 cables north-eastward of *Point Blanche*, is a low point surrounded by rocks. *Rocher Christaou* (*Cristaux*), 20 feet  
40 high, with a white beacon on it, lies half a cable off the cape. *Coast continued on page 128.*

**ÎLES d'HYÈRES**, six in number, including, besides *Grand* and *Petit Ribaud*, already mentioned, *Porquerolles*, *Bagau*, *Port*

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 16° 40' W.*

Cros, and Levant, extend nearly east and west in front of Rade d'Hyères, and to some extent shelter it from southerly winds.

**Île de Porquerolles**,  $1\frac{1}{4}$  miles south-eastward from Presqu'île de Giens, is 4 miles long east and west, and about one mile broad, 5 irregular in form, 476 feet high, rugged and bold on the south and east, and almost entirely covered with pine and oak woods. The roads in the island are for military purposes and are good. The water supply is bad. Views on charts 2607, 2608.

**Beacon.**—A black pyramidal quadrangular lathwork beacon, 10 40 feet high, stands on the west summit of Île de Porquerolles; it is used in connection with a measured distance.

**Signal station.**—There is a semaphore, a white house and tower, 33 feet high, on the summit, 476 feet high (*Lat. 43° 0' N., Long. 6° 14' E.*), of Île de Porquerolles, about a mile from the east 15 coast.

**Pointe du Grand Langoustier**, the west extreme of the island, is low with a fort on it. The point is bordered by rocks, and about a cable from its northern part is Île du Petit Langoustier, on which is a fort with a circular tower. La Jeune Garde, nearly a 20 cable north-westward of Petit Langoustier, is a rock above water, on which is a beacon, painted red and white in horizontal stripes, and surmounted by two cones, points together, 37 feet high.

**Basse Langoustier**, a small patch with  $5\frac{1}{2}$  fathoms water, and not less than 10 fathoms around, on which the sea breaks with winds 25 from seaward, lies  $2\frac{1}{2}$  cables westward of Pointe du Grand Langoustier.

**Wireless telegraph.**—There is an experimental wireless telegraph station on Île de Porquerolles, open only in cases of distress. The call letters are F.F.P. 30

**Petite Passe des îles d'Hyères**, or Passe de l'Ouest, three-quarters of a mile wide, lies between Grand Ribaud and Petit Langoustier. There is a depth of about 10 fathoms one cable from Grand Ribaud, 3 cables from the coast of Giens, and 2 cables from Petit Langoustier, and depths which reach 23 fathoms in the middle of 35 the pass. It is frequented by steam vessels, and sailing vessels use it with advantage when going westward, as they then generally have the current in their favour; but it is difficult for them when going eastward with easterly winds, because the current is against them, and the sea becomes heavy. 40

In proceeding through the pass keep in mid-channel; if working through, give a berth to the rocks on either side.

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

- The south coast** of Porquerolles, from Pointe du Grand Langoustier, trends south-eastward  $1\frac{3}{4}$  miles to Cap d'Armes and then turns east-north-eastward  $2\frac{3}{4}$  miles to the south-east point of the island; it is high, and affords neither anchorage nor shelter, but it is steep-to at the distance of a cable.

**LIGHT.**—A light is exhibited, at 262 feet above high water, from a square white tower, with a main building, 69 feet high, on the high land half a mile eastward of Cap d'Armes.

- Ilots Sarranier** (Seraignet).—Ilot du Gros Sarranier lies close off the south-east point of Porquerolles, there being only a boat passage between. Ilot du Petit Sarranier (*Lat.  $43^{\circ} 0'$  N., Long.  $6^{\circ} 15'$  E.*) lies a quarter of a mile south-eastward of Gros Sarranier. Both islets are high and bold, with rocks around, and midway between them is a narrow channel with  $5\frac{1}{2}$  fathoms water. Vessels should pass not less than 3 cables southward of Gros Sarranier, nor less than  $1\frac{1}{2}$  cables eastward of Petit Sarranier.

- Beacons.**—Two black beacons, each surmounted by a sphere, stand, one on Petit Sarranier, and the other on Pointe le Gros Mourre, on the coast  $1\frac{1}{4}$  miles to the northward; the beacons marked an old measured distance.

- The east coast** of Porquerolles from Gros Sarranier trends northward  $1\frac{6}{10}$  miles to Cap des Mèdes, the north extreme of the island; it is high, rugged, bold, and steep-to at the distance of a cable. Batterie des Mèdes, with a white watch-house, stands on the cape.

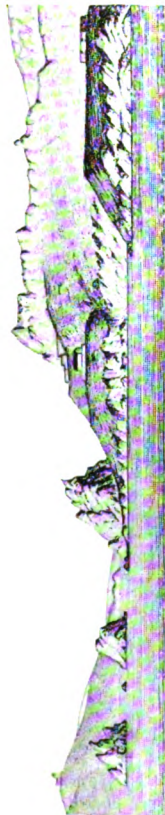
- Rochers des Mèdes.**—About one cable northward of Cap des Mèdes are three high rocks; about 50 yards northward of the northern rock is a rock with 3 feet water, on which the sea breaks only in heavy weather; the channels between are used by boats.

**Buoys.**—A white mooring buoy lies about one cable northward of the northern Rocher des Mèdes. Two white buoys lie about one mile north-north-westward of the northern Rocher des Mèdes, and about one cable southward of them is a wreck.

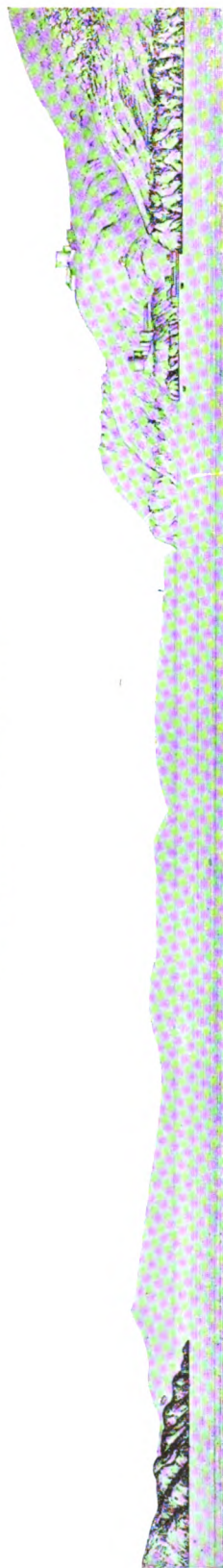
- Caution.**—Gun-firing, *see* page 127.

- The north coast** of Porquerolles from Ile du Petit Langoustier trends east-north-eastward about 4 miles to Cap des Mèdes; it is lower than the south, and is indented by two rather deep bays with beaches; Rade de Porquerolles, the western bay, is comprised between Pointe de Ben (Bon) Renaud, on the west, and Pointe le Quin, on the east. Château de Porquerolles, on the south shore, is a large building surmounted by a large round tower, and barracks extend from it to the foot of the hill, on which it is built. Pointe Beaulieu, north-

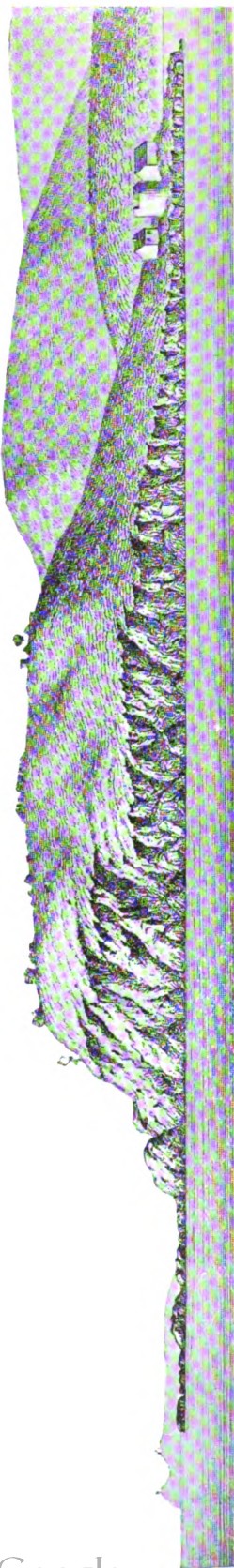
*General charts 2607, 1780, 2158a, 449.*



Cap Benat semaphore.  
Rochers des Mides.  
Pte. Blanche.  
Cap des Mides.  
Batterie des Mides.  
From Rade de Porquerolles.



Ile de Bagau, Pointe Sud.  
Rade de Port Cros.  
Cap Camarant lighthouse.  
Pointe Miladou.  
Château.  
Fort de l'Escluse.  
Pointe de la Pomme d'Or.  
Passe de Bagau from the south-westward.



Ile du Levant.  
Cap de Cavalaire.  
Lighthouse.  
Semaphore.  
Old tower.  
From the anchorage, Baie de Cavalaire.



*Chart 2608, Approaches to Toulon. Var. 10° 40' W.*

ward of the Château, lies between two beaches, and there is a jetty, 575 feet long, on its western side, within which is a small sheltered port for vessels of 10 feet and less draught; northerly winds send in a little swell. There is a village here. The road, though open to the northward, is almost sheltered, because the land in that direction is not distant; vessels sometimes drag with winds from between north-west and east-north-east. Anchor southward of the alignment of the northern Rocher des Mèdes and Pointe Blanche, with Pointe Rousset, the north-western extreme of Porquerolles, and Pointe Ben Renaud in line, in 5 fathoms water. View from the rade at page 122. 5 10

Anse de Notre Dame lies between Pointe le Quin and Cap des Mèdes. Pointe Alicastre, about 2 cables eastward of Pointe le Quin, has a fort on it. Vessels sometimes, though rarely, anchor off Notre Dame beach, to the eastward of Pointe le Quin, in from 4 to 5 fathoms water, but a sailing vessel here cannot get under way with westerly or northerly winds without risk of going on the shoal bank off the shore. 15

**Light.**—A light is exhibited from a pole over a white shed, 22 feet high, on the jetty end (*Lat. 43° 0' N., Long. 6° 12' E.*) in Rade de Porquerolles. 20

**Buoys.**—A white buoy is moored about half a cable northward of Pointe du Ben Renaud, and a white buoy a quarter of a mile westward of Pointe le Quin.

A red and black buoy marks a wreck, with  $3\frac{1}{4}$  fathoms water over it, about 2 cables northward of Pointe le Quin. 25

**Life-saving station.**—A rocket apparatus is stationed at Porquerolles Custom house.

**Grande Passe des îles d'Hyères,** or Passe du Sud, is between Île de Porquerolles and Îles de Bagau and de Port Cros,  $4\frac{1}{2}$  miles to the eastward; it has depths of from 16 to 46 fathoms, and the islands on both sides can be approached to the distance of a cable, but  $1\frac{4}{10}$  miles east-south-eastward of Petit Sarranier, is Sèche des Sarranier, a small rocky bank with 11 fathoms water, and from 18 to 29 fathoms around, which should be avoided in bad weather. 30 35

**Target mooring buoys.**—Four mooring buoys lie between about one and  $1\frac{1}{2}$  miles eastward of Pointe Galère, east coast of Île de Porquerolles.

**ÎLE de BAGAU,** about  $4\frac{1}{2}$  miles southward of Cap Bénat, is three-quarters of a mile long north and south, a quarter of a mile 40

*General charts 2607, 1780, 2158a, 449.*



*Chart 2608, Approaches to Toulon. Var. 10° 35' W.*

broad, 167 feet high, and is steep-to at the distance of a cable. There are fortifications on the island.

**Rade de Port Cros** is between Îles de Bagau and de Port Cros ;  
 5 **Passe de Bagau**, or du Sud-ouest, its southern entrance, is  $1\frac{1}{2}$  cables wide between the rocks which border the south point of Bagau and **Pointe Malalongue**, the west point of Île de Port Cros ; the north entrance is 7 cables wide. The road affords shelter, except from north to north-east, and from south-west, winds, but the sea is never very  
 10 heavy, though a swell comes in with south-westerly winds. Anchor in from 11 to 14 fathoms, mud and weeds bottom, in the middle of the road, westward of **Château de Port Cros**.

**Passe de Bagau**, or **Passe du Sud-ouest**, has depths of 11 and 9 fathoms in mid-channel, and 7 fathoms just inside it ; sailing vessels  
 15 should only use the pass with a fair wind. A current frequently sets south-westward at a rate of one knot through the pass. View at page 122.

**ÎLE de PORT CROS**, about a quarter of a mile south-eastward of Île de Bagau, is about  $2\frac{1}{2}$  miles long east and west,  $1\frac{3}{10}$  miles  
 20 broad, and rugged, its south-eastern part being 679 feet high, with **Fort Vigie** and a flagstaff on it. View on chart 2607.

**The south coast** of the island from **Pointe Malalongue** trends south-eastward 4 cables to **Pointe Cognet**, and then eastward  $1\frac{1}{10}$  miles to **Pointe du Vallon**, whence it turns north-eastward  $1\frac{6}{10}$  miles to  
 25 **Pointe de Port Man** ; it is very steep and inaccessible.

**Îlot de la Gabinière** (*Lat. 42° 59' N., Long. 6° 24' E.*), a large pointed rock, 206 feet high, lies 2 cables southward of **Pointe du Vallon** ; it is steep-to, but there is a depth of 6 fathoms about half a cable to the southward, and a depth of 12 fathoms between it and the  
 30 island.

**Port de Port Cros**, on the north-west side of the island, is a cove about 2 cables wide at its entrance between **Pointes Pomme d'Or** and **du Moulin**, and it extends about the same distance south-eastward. The depths decrease gradually from  $5\frac{1}{2}$  fathoms in the  
 35 entrance to the head of the cove, where there is a bank of soft mud, on which vessels can ground safely.

There is no mill now on **Pointe du Moulin**. An old fortified castle stands within **Pointe du Moulin**, and at its foot is a village and a little landing mole. On the steep land above the castle are **Forts de**  
 40 **l'Estissac** and **de l'Eminence**, the latter 433 feet high. The port is much used as a harbour of refuge, but the space is limited. A red buoy for the use of vessels getting under way lies in the entrance in 4 fathoms water.

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 35' W.*

Violent squalls come down from the high land of the island, especially with south-easterly winds, and must be guarded against; south-westerly winds cause a swell.

Water can be obtained from wells dug in the beach.

5

**The coast** of the island from Pointe du Moulin to Pointe de la Galère,  $1\frac{1}{2}$  miles east-north-eastward, is bold and clear. Baie de la Palu, which extends about 2 cables south-eastward on the south-west side of Rocher des Rascas, situated half a mile from Pointe du Moulin, is shoal. Rocher des Rascas is low and black and connected by a rocky spit to the shore.

**Telegraph cable beacons.**—Two beacons, painted blue and white in horizontal bands, and each surmounted by a white disc, on the shore of Baie de la Palu, in line  $150^\circ$  true, mark the direction of a telegraph cable. Anchorage near this line is prohibited.

15

**Port Man.**—Anse de Port Man (*Lat.  $43^\circ 1'$  N., Long.  $6^\circ 25'$  E.*), situated at the north-east end of the island, between Pointe de la Galère, low, narrow, and projecting to the northward, and Pointe de Port Man, on which is a large tower and a fort in ruins, and from which two low rocks project and are steep-to, is  $2\frac{1}{2}$  cables wide at the entrance, and extends half a mile south-westward, with 14 fathoms water in the entrance, shoaling to the beach at its head. It affords good shelter from north-west winds, but is impracticable with north-east winds, and violent squalls are experienced from off the high land. With strong winds from between south-west and north-west it is necessary to take in all sail in the approach. Anchor in the middle of the bay in from 6 to 8 fathoms; then send two hawsers to the two inner points of the bay, and haul into about 5 fathoms water. There are no inhabitants.

20

25

**Passe des Grottes** lies between Île de Port Cros and Île du Levant, half a mile to the eastward; it has depths of from 8 to 10 fathoms, but,  $1\frac{1}{2}$  cables off the coast of Île de Port Cros, and  $4\frac{1}{2}$  cables southward of Pointe du Port Man, is Basse du Chenal des Grottes (Roche de la Dame), a rock awash, marked by a black masonry beacon, surmounted by a cylinder, 36 feet high.

35

In navigating the pass, keep near Île du Levant.

**ÎLE du LEVANT, or du Titan,** is  $4\frac{1}{2}$  miles long north-east and south-west, about three-quarters of a mile broad, and 427 feet high. View on chart 2607.

**The west coast** of the island from Pointe Rousse, its north-western point, close off which is a spit with  $4\frac{3}{4}$  fathoms water, trends southward one mile to Pointe Maupertuis, and is steep-to and clear.

40

There is a small detached rocky shoal with  $7\frac{1}{2}$  fathoms water a cable southward of Pointe Maupertuis.

*General charts 2607, 1780, 2158a, 449.*

*Chart 2607, Marseille to Agay road. Var. 10° 35' W.*

**The south-east coast** forms a bight between Pointe Maupertuis and Pointe Russe (du Roucas roux), about 6 cables to the north-eastward.

- 5 From Pointe Russe it trends north-eastward 3 miles to the east point of the island, and then turns north-north-westward half a mile to Pointe de Calerousse (*Lat. 45° 3' N., Long. 6° 30' E.*), the north point; it is steep-to and clear.

- 10 Pointe de la Reste lies half a mile south-westward of the east point of the island, and Port du Titan, about half a mile westward of it, is a small cove used by fishing boats in fine weather. An old tower stands on the east entrance point.

Sèche du Titan, a patch with 7 fathoms water, lies half a mile southward of the old tower of Titan. The coast is high and bold.

- 15 **LIGHT.**—A light is exhibited, at 229 feet above high water, from a stone circular tower, with a main building having a square tower, all white, 33 feet high, on the east point of Île du Levant.

- 20 **Signal station.**—There is a semaphore, white house, and tower, 30 feet high, about 2 cables north-westward of the lighthouse, and 364 feet above high water.

**Rocher l'Esquilladon**, situated 1½ cables off the east point of Île du Levant, is low, and a reef extends about a cable north-eastward from it; only fishing boats can pass inside the rock, although there is a depth of 12 fathoms in the channel.

- 25 **Rocher l'Esquillade**, one mile eastward of the lighthouse, is a low islet or rock, and about one cable westward of it is a rock with 3 feet water, which does not always break, even with certain winds from seaward; between them is a depth of 11 fathoms.

- 30 The passage between Rochers l'Esquillade and l'Esquilladon is half a mile wide, with 25 fathoms water.

**Beacon.**—A masonry tower, painted red and black in horizontal stripes and surmounted by a sphere, 36 feet high, stands on Rocher l'Esquillade.

- 35 **The north-west coast** from Pointe Rousse trends north-eastward 2½ miles to Pointe du Castelas, and then turns eastward 1½ miles to Pointe de Calerousse; it is bold and clear.

**Soundings.**—Excepting the spits and rocks above mentioned Île du Levant is steep-to; the 100-fathom line is about 2 miles from its south-east coast, and about one mile from its north-west coast.

- 40 **Caution.**—The passage between Cap Bénat on the north, and Îles de Bagau, de Port Cros, and du Levant, is 4 miles wide. Îles

*General charts 1780, 2158a, 449.*

*Chart 2607, Marseille to Agay road. Var. 10° 35' W.*

d'Hyères break the sea from the southward in Rade d'Hyères, but in the several passes between the islands the currents caused by the prevailing winds are strong, and caution is necessary when navigating through them or in their vicinity. 5

**Gun-firing practice.—Areas.**—Gun-firing practice by vessels of war in the vicinity of Îles d'Hyères is carried out in two areas, the limits of which are:—

*Chart 2608, Approaches to Toulon.*

**Western area:**—On the north—the coast between Port Pothuau 10 and Cap Bénat; on the east—a line drawn 180° true from Cap Bénat; on the west, northward of Porquerolles—a line between Port Pothuau lighthouse and Cap d'Armes lighthouse; southward of Porquerolles—a line drawn 180° true from Pointe du Grand Langoustier; and on the south—the parallel of 42° 55' N. latitude. 15

*Chart 2607, Marseille to Agay road.*

**Eastern area:**—On the north—the coast between Cap Négret (Lat. 43° 9' N., Long. 6° 26' E.) and Cap Camarat; on the east—a line drawn 180° true from Cap Camarat; on the west—a line drawn 180° true from Cap Négret; and on the south—a line drawn 90° true and 270° true from the lighthouse on the east point of Île du Levant. 20

Vessels must not pass through either of the areas defined above whilst firing is going on, and must obey any orders received from the gunboats patrolling the danger zone.

At night, should a vessel, not noticing the searchlights of the vessels of war, inadvertently enter either of the above-mentioned areas whilst firing is in progress, she should pass at least 3 miles astern of the tug towing the targets. 25

**Signals.**—By day.—Gun-firing with projectiles, in either of the above-mentioned areas, is indicated, by day, by a red square flag hoisted at the masts of the semaphores of Giens, Porquerolles, Cap Bénat, and Île du Levant. The flag is hoisted from half an hour before the commencement until the conclusion of the practice. The flag is also hoisted on Cap des Mèdes. 30

When firing is being carried out from Île du Levant, the red flag is hoisted at the semaphores above mentioned. 35

At night.—No signal is made at the semaphores to indicate that firing is in progress, but each vessel firing carries, in addition to the usual navigational lights, a red light at the masthead.

The targets are not marked by any light, and they may be anchored, drifting, or in tow; in the last case, the tug will carry the regulation navigational lights; the tow rope may be over a mile in length. 40

*General charts 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 35' W.*

The last vessel firing signals the conclusion of the practice by charging four *red* rockets singly at intervals of *twenty seconds*, followed after an interval of *two minutes* by a sheaf of *white* rockets.

- 5 **The coast** between Cap Bénat and Pointe de l'Esquillette, three-quarters of a mile to the northward, forms a bay, and at its head, near a little sandy beach, is a small landing place, from which a carriage road leads to the lighthouse and semaphore.

- 10 **Pointe de l'Esquillette** (*Lat. 43° 6' N., Long. 6° 22' E.*) is low and projects nearly a cable eastward; a ledge of rocks, above and below water, extends nearly 2 cables eastward from the point.

- RADE de BORMES.**—The coast from Pointe de l'Esquillette trends northward, 2 miles, to Le Lavandou village, and thence eastward half a mile to Pointe du Nard Viou, forming two bays with sandy beaches. Rade de Bormes is the anchorage off these bays. Bormes village is situated on rising ground  $1\frac{1}{2}$  miles north-westward of Le Lavandou, and its churches and mills are conspicuous; its population is about 2,000. Le Lavandou is a pleasantly-situated resort, with a population of about 900; there is a profusion of lavender on the hills near it.

A jetty extends south-south-westward, 170 yards, from near the eastern house of Le Lavandou village, and there is a depth of 10 feet at its outer end.

- 25 **Light.**—A light is exhibited from a post at the end of Le Lavandou jetty, or in heavy weather from the beach westward of Le Lavandou.

**Life-saving station.**—There is a station to afford assistance in case of shipwreck at Le Lavandou Custom house.

- 30 **Communication.**—Le Lavandou is on the Toulon, Hyères, and Saint Raphael railway, which runs for considerable distances along the coast.

**Mark.**—There is a white mark on Pointe du Nard Viou, used in connection with a measured distance.

- 35 **Sèche de Gouron** is a rocky bank with from 6 to 9 fathoms water, which extends half a mile southward from three-quarters of a mile southward of Pointe du Nard Viou; vessels must not anchor on the bank. Elsewhere in the road the bottom is sand, shells, and patches of weeds, with from 5 to 6 fathoms at 2 cables from the shore.

- 40 **La Fourmigue de Bormes** (La Garbelle or La Boute),  $1\frac{1}{2}$  miles eastward from Pointe de l'Esquillette, is a round rock, 150 feet across, 13 feet high, and surrounded to the distance of a little more than half a cable by sunken rocks. Between it and Pointe de l'Esquillette there are from 15 to 23 fathoms.

*General charts 2607, 1780, 2158a, 449.*

*Chart 2608, Approaches to Toulon. Var. 10° 35' W.*

**Beacon.**—A beacon, used in connection with a measured distance, stands on the rock.

**Anchorage.**—Rade de Bormes is open to south-easterly winds, and the holding ground is indifferent; the better anchorage is off the coast between Le Lavandou and Pointe du Nard Viou, about 3 cables from the shore in from 7 to 11 fathoms, sand and mud. 5

**The coast** from Pointe du Nard Viou trends east-north-eastward  $2\frac{1}{2}$  miles, and then turns southward half a mile to Cap Nègret; it forms several small bays. 10

A rocky spit extends about 2 cables south-westward from a point about  $1\frac{1}{4}$  miles eastward of Pointe du Nard Viou.

Anse de Cavalière, between Pointe de Layet,  $1\frac{1}{2}$  miles eastward of Pointe du Nard Viou, and Cap Nègret, is the most important of the bays; it affords anchorage in 6 fathoms, weeds, a little more than a cable off-shore. A white beacon used in connection with a measured distance stands in a field on the north shore of the bay, where there is also a railway station. 15

**Cap Nègret (Nègre)** is 367 feet high, black, and bold on the south-east side; it is steep-to and clear. A beacon, used in connection with a measured distance, stands in a cutting near the extreme of the cape. 20

*Chart 2607, Marseille to Agay road.*

**The coast** from Cap Nègret trends east-north-eastward,  $4\frac{1}{2}$  miles, to Cap de Cavalaire, and is the base of a chain of steep hills covered by pines; it presents a succession of beaches and red points which can be approached to a distance of a quarter of a mile. Rocher Malpague (Malpagne), 3 feet high, lies  $1\frac{1}{2}$  cables off-shore, and south-eastward of a ruined tower situated  $1\frac{1}{2}$  miles north-eastward of Cap Nègret, and a reef extends 2 cables southward from Pointe du Datier (Dattier), nearly  $3\frac{1}{4}$  miles eastward of Cap Nègret. A conspicuous white square house, with a red roof, stands on Pointe du Datier. There is no anchorage along the coast. 25 30

**Cap de Cavalaire** (Lat.  $43^{\circ} 10' N.$ , Long.  $6^{\circ} 32' E.$ ) is dark in colour and moderately high; from it the coast trends north-eastward about 4 cables to its east point, on which, at about 100 feet above high water, is an old windmill tower and the ruins of a guardhouse. In front of the windmill tower is a white wall, 10 feet high, which is used as a mark in connection with a measured distance. The cape is skirted with rocks, which are close to it. 40

**Baie de Cavalaire** lies between Cap de Cavalaire and Cap Lardier, nearly 4 miles to the eastward. Several small streams run into the bay, and the shore is skirted by rocks. Mont Cavalaire (Les

*General charts 1780, 2158a, 449.*

*Chart 2607, Marseille to Agay road. Var. 10° 35' W.*

Pradels), 2 miles north-westward of the anchorage, is 1,719 feet high, and is part of a wooded chain extending westward and sloping to the sea. On the west shore of the bay, and on the side of the mountain  
5 is a white wall, 16 feet high, which is used as a mark in connection with a measured distance.

North-eastward of Cap de Cavalaire is a narrow beach off which there is anchorage sheltered from westerly winds. The usual position for anchoring is north-eastward of some houses and of the tower, and  
10 about 2 to 3 cables off-shore, with the lighthouse on the east point of Ile du Levant open eastward of the east point of Cap de Cavalaire, in about 8 fathoms. View at page 122.

A jetty, 328 feet long, 30 feet broad, with 14 feet water at its outer end, extends northward from the rocks awash near the old tower.

15 **Life-saving station.**—A rocket apparatus is stationed at Cavalaire Custom house, where there is also an establishment for affording aid to shipwrecked mariners.

**Jova anchorage.**—Pointe Dubreuil is  $1\frac{1}{4}$  miles north-north-westward of Cap Lardier, and northward of the point is a small sandy  
20 beach off which there is anchorage sheltered from winds between north-east and south-east.

**Cap Lardier** is a point projecting southward, 253 feet high, rugged, and skirted with greyish rocks. A white wall, 13 feet high, stands on the southern fall of the cape, and is used as a mark in connection with a measured distance.  
25

Basse Lardier, with 3 feet water, lies half a cable eastward of the south extreme of the cape, and Roche Quairolle, small, and with 3 fathoms water, lies 6 cables east-south-eastward of the cape.

**Clearing mark.**—Cap Camarat lighthouse well open eastward  
30 of Cap Taillat leads eastward of the rocks just mentioned.

**Baie de Briande**, between Cap Lardier and Cap Taillat,  $1\frac{1}{4}$  miles east-north-eastward, affords anchorage in north-westerly winds, but Baie de Bon Porté, to the northward, is generally preferred. Violent north-westerly squalls are felt here.

35 **Cap Taillat** is the extremity of a small whitish steep rugged peninsula, about 4 cables long north-west and south-east, and 200 feet high; within a cable off it is a large rock and some low rocks. The peninsula is connected to the mainland by the very low sandy Isthme de Bon Porté (*Lat. 43° 10' N., Long. 6° 38' E.*).

40 **Rochers de l'Enfer**, two rocks above water, and some sunken rocks, extend about 4 cables north-eastward of Cap Taillat.

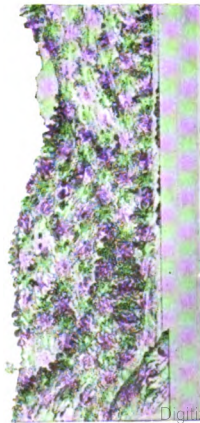
**Beacon.**—A large black quadrangular pyramidal lathwork beacon, 40 feet high, is situated on the summit of Cap Taillat.

*General charts 1780, 2158a, 449.*



Cap Taillat.  
Plage de Bon Porté.  
Ile du Levant lighthouse, bearing 217° true.

Baie de Bon Porté, from the anchorage.

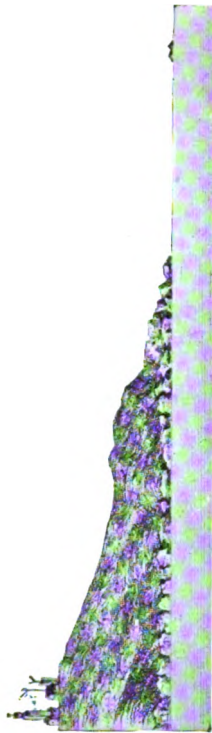


Pointe Escudelier.  
Moulin Paillas between  
two hills of Bon Porté.  
Baie de Bon Porté, from the  
anchorage.

Old semaphore Ste Marguerite.

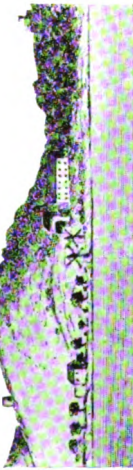


The pines of Pointe du Vengeur in line with the  
rocky point north of the citadel.  
Passage north of La  
Jonquière.



Cap Camarat lighthouse,  
bearing 40° true.  
Pointe Moussure,  
Rocher des Portes.

Rocher Fouras.

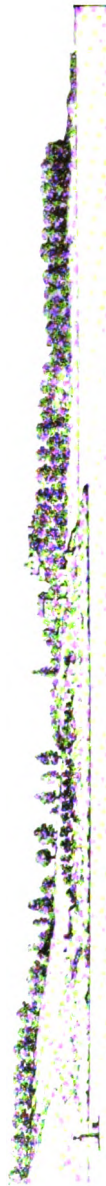
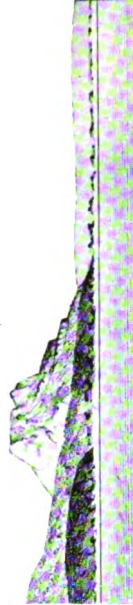


Pinède windmills.  
Château Vasserot.  
Courant des Capucins.  
Golfe de Saint Tropez.

Mont de Roquebrune.

Plage de Fréjus.

From the entrance to Golfe de Fréjus.



Abbaye Saint Honorat.  
Ruined battery du Dragon.

Tour de Batignier.

West point of Saint  
Honorat.

Bronde de Batignier; marks for clearing.





*Chart 2607, Marseille to Agay road. Var. 10° 35' W.*

**Measured distances.**—Distances for ascertaining the speed of steam vessels have been measured and marked, thus:—The running marks are, on the west, the beacon on the west summit of Ile Porquerolles in line with the white watch-house on Batterie des Mèdes, 5 and, on the east, the beacon on the summit of Cap Taillat in line with the white wall on the southern fall of Cap Lardier, 64° and 244° true. The western limit is La Tour du Château Roy in line with the beacon on a rock between Ile Brégançon and the land.

The eastern limit is the white wall, on the side of the mountain westward of Baie de Cavalaire, in line with the white wall on Cap Cavalaire. 10

The length of the distance is 21,498 yards.

The distance between the western limit and a line from Pointe du Nard Viou through the beacon on Rocher de la Fourmigue is 15 7,115 yards.

The distance between the western limit and a line from the beacon in a field on the north shore of Baie de Cavalière through the beacon on Cap Négret is 11,670 yards.

**Baie de Bon Porté** lies between Cap Taillat and Cap Camarat, 20 2½ miles north-eastward, the shore being wooded, and nearly midway is Rocher Escudelier, about 16 feet high and close to the land. Basse de Cassin, with 5 feet water, lies 3 cables north-eastward of Rocher Escudelier.

**Anchorage.**—There is anchorage with north-westerly winds, 25 which are accompanied by heavy squalls, in Baie de Bon Porté, between Cap Taillat and Rocher Escudelier, in 10 to 12 fathoms, sand and mud. Views at page 130. Caution, however, is necessary to prevent being surprised here, or in Baie de Briande, with winds from seaward. 30

**Water** can be obtained from wells near Bon Porté Custom house, but it is brackish in summer.

**Cap Camarat** (*Lat. 43° 12' N., Long. 6° 41' E.*) slopes gently from a hill 430 feet high, covered with vegetation, and terminates in a low point of reddish colour. View at page 130. 35

Mont Paillas, 3¾ miles west-north-westward from the cape, is 1,083 feet high, and there is an old mill tower on its summit. Ramatuelle village, on the slope of the mountain, and about half a mile east-south-eastward of the summit, is conspicuous from seaward.

Rocher des Portes, close to the cape, is a small islet, 40 feet high; 40 other rocks extend off a quarter of a mile further, Rocher Fouras, the outer one, being 16 feet high and appearing isolated.

**LIGHT.**—A light is exhibited, at 429 feet above high water, from a square brown tower with a dwelling, 79 feet high, situated on the summit of Cap Camarat. 45

*General charts 1780, 2158a, 449.*

*Chart 2607, Marseille to Agay road. Var. 10° 35' W.*

**Signal station.**—A semaphore, a white house and tower, 30 feet high, is situated about 30 yards south-eastward of the lighthouse.

**Life-saving station.**—In case of shipwreck aid is afforded from  
5 a station at Camarat Custom house.

**Currents.**—The currents off the coast between Cap Camarat and Cap d'Antibes are very variable, and appear to depend on the wind; they are generally weak, with a rate of less than one knot.

**Baie de Pampelonne.**—The coast from Cap Camarat trends  
10 northward with a slight curve westward, and has a beach 2 miles in length. Pointe de Bonne Terrasse, 56 feet high, with a coastguard house on it, is near the south end of the beach, the north end of which is near Cap du Pinet, whence the coast trends north-eastward nearly a mile to Pointe de Capon, and is wooded hills of moderate height,  
15 which rise steeply.

Sèche de Salagrue, rocky, with one foot water, lies about 2 cables off the beach, less than a mile southward of Cap du Pinet.

**Anchorage.**—There is anchorage, with westerly winds, off the beach, and about 5 cables north-eastward of Pointe de Bonne Terrasse,  
20 in about 10 fathoms, fine sand with patches of weed, and good holding ground. Do not bring Cap Camarat lighthouse eastward of 180° true to avoid the rocks which border the beach. It is preferable to the anchorage of Bon Porté, as, should winds set in from seaward, there is more room to get to sea; vessels should be ready to leave.

**Water** can be obtained from a little covered spring near the Custom house, but it is sometimes dry in summer.

*Plan 1744, Gulf of St. Tropez.*

**Cap de Saint Tropez**, or de la Moutte.—The coast from Pointe de Capon trends north-north-eastward nearly a mile to Cap  
30 de Saint Tropez (*Lat. 43° 16' N., Long. 6° 42' E.*), the eastern extreme of the peninsula on the south side of Golfe de Saint Tropez; northward of Pointe de Capon it descends to a small sandy beach, and rises again at Cap de Saint Tropez.

**Teste de Can** is a group of three low and bare rocks half a  
35 mile eastward of the southern part of the beach northward of Pointe de Capon; there is no passage between it and the shore available for navigation without local knowledge.

Basses de Can are a patch of rocks with 4½ fathoms water, 5½ cables eastward of Teste de Can. Basses S.E. de Can are two rocks each  
40 with 5½ fathoms water, situated about 9 cables and rather more than a mile, respectively, east-south-eastward of Teste de Can. The sea often breaks on these rocks.

*General charts 2607, 1780, 2158a, 449.*

*Chart 2607, Marseille to Agay road. Var. 10° 35' W.*

**Le Verhugé**, a rock with 8 fathoms water, lies nearly  $1\frac{3}{4}$  miles eastward of Teste de Can, and there is a heavy sea over it in bad weather. Views from the rock on chart 2607.

**Clearing marks.**—The lighthouse on the east point of Île du 5  
Levant open south-eastward of Cape Taillat and Rocher des Portes, off  
Cap Camarat, leads south-eastward, and Montagne Saint Pierre open  
northward of Pointe de Rabiou leads north-eastward of these rocks.

*Plan 1744, Gulf of St. Tropez.*

**Basses de la Moutte.**—Île de la Moutte, small, low, and 10  
covered with vegetation, lies close off Cap de Saint Tropez, and Basses  
de la Moutte, a line of shoals, with from 3 feet to  $4\frac{1}{2}$  fathoms water,  
extend north-eastward nearly one mile from it.

**Beacon.**—A black masonry tower, surmounted by a cylinder,  
34 feet high, stands in 18 feet water on the shoals (*Lat. 43° 16' N., 15*  
*Long. 6° 43' E.*), 6 cables north-eastward of Île de la Moutte.

Basse du N.E., the outer shoal, with  $4\frac{1}{2}$  fathoms water, lies 3 cables  
east-north-eastward of the beacon, which should not be approached  
within 4 cables. Cap Camarat lighthouse seen midway between  
Teste de Can and Rocher des Portes leads eastward of the shoal. 20

**The coast** from Cap de Saint Tropez trends north-westward  
 $1\frac{1}{10}$  miles to Pointe de Rabiou, and rises in well-wooded slopes to hills  
from 115 to 190 feet high.

**Roche de l'Ay**, nearly three-quarters of a mile north-westward  
of Île de la Moutte, and  $2\frac{1}{2}$  cables off-shore, is awash. A ridge, with 25  
not more than 3 fathoms water, extends between the rock and the  
shore to the south-south-westward.

**Basse de Rabiou**, 4 cables north-north-eastward of Pointe de  
Rabiou, has 2 fathoms water; it is steep-to, except to the north-west-  
ward, where a spit with  $3\frac{3}{4}$  fathoms water extends over a cable. 30

**Beacon.**—A black masonry beacon, surmounted by a cylinder,  
38 feet high, stands on the shoal.

**Caution.**—When rounding Cap de Saint Tropez with strong  
easterly winds give it a berth of about 3 miles.

**GOLFE de SAINT TROPEZ** extends west-south-westward 35  
4 miles from its entrance between Pointe de Rabiou and Pointe des  
Sardinaux, about 2 miles to the northward; the width of the gulf  
decreases to one mile at its head. The north and south shores are  
sandy beaches separated by little cliffs rising to hills, the slopes of  
which are gentle and well wooded; the land at the head of the gulf is 40  
low, marshy, and fronted by Plage de Grimaud, a sandy beach; Rivière

*General charts 2607, 1780, 2158a, 449.*

*Plan 1744, Gulf of St. Tropez. Var. 10° 35' W.*

la Fous (Foux) flows through it. The north shore is backed by the range of Mont Saint Pierre, which slopes down to Sainte Maxime village; a river enters the sea about 2 cables westward of the village.

- 5     **Anse des Canoubiés.**—The shore from Pointe de Rabiou (*Lat. 43° 17' N., Long. 6° 41' E.*) trends west-south-westward  $4\frac{1}{2}$  cables to Pointe de Saint Pierre, on which are the remains of an old battery.

- Anse des Canoubiés extends southward about 6 cables between Pointe de Saint Pierre and Pointe du Cimetière, one mile to the west-  
10   ward. The depth decreases from 18 fathoms in the entrance to 3 fathoms 4 cables within, but the shores and head of the bay are bordered by a shoal bank extending off from a half to  $2\frac{1}{2}$  cables. Basse des Canoubiés, with  $3\frac{1}{2}$  fathoms water, rock, lies about 3 cables south-westward of Pointe de Saint Pierre. The bay affords shelter from  
15   southerly and easterly winds in from 5 to 6 fathoms water; in greater depths the holding ground is bad.

Pointe du Cimetière rises to a hill, on which is the large Citadelle de Saint Tropez, surrounded by walls, and on a hill about a quarter of a mile south-eastward of the citadel are four old windmill towers.

- 20   **Port de Saint Tropez** is sheltered from the northward by a mole which extends westward 350 yards from the old Tour du Portalet, situated on the shore about 3 cables westward of Pointe du Cimetière. The south mole extends northward 50 yards from the point, on which are shipbuilding yards, and the entrance to the port  
25   is about 44 yards wide. The port is about  $1\frac{1}{4}$  cables long north and south, one cable wide, and has a depth of  $2\frac{3}{4}$  fathoms, but vessels of more than 13 feet draught are not able to enter.

- The town, on the site of ancient Heraclea, faces westward; the inhabitants number about 3,500, and are chiefly engaged in tunny  
30   and other fisheries. Besides the citadel there are two large towers, one at the north end of the town, the other on the south mole.

The coast between Point du Cimetière and the north mole is bordered by a shoal bank which extends off nearly  $1\frac{1}{2}$  cables.

- Lights.**—A light is exhibited, at 51 feet above high water, from a  
35   white round tower, 55 feet high, on the extremity of the north mole.

A light is exhibited from a white iron standard and shed, 24 feet high, on the extremity of the south mole.

**Buoys.**—There are two red mooring buoys in the entrance to the port.

- 40   **Supplies.**—All necessary supplies can be procured at Saint Tropez.

**Communication.**—There is a branch line to Cogolin which connects at La Fous with Toulon, Hyères, and Saint Raphael railway.

*General charts 2607, 1780, 2158a, 449.*

*Plan 1744, Gulf of St. Tropez. Var. 10° 35' W.*

**Anchorage.**—Moulins anchorage, about half a mile westward of Port de Saint Tropez, and north-eastward of the two windmills of La Pinède, is in 9 to 10 fathoms.

Bertaud anchorage, view at page 130, in the south part of the head of the gulf, and  $1\frac{1}{2}$  miles from Saint Tropez, in 6 to 7 fathoms, is somewhat protected by the shoal water extending northward from Pointe de Bertaud; there are two old windmills on the point, and Château Bertaud is situated nearly a cable south-westward of it.

Couvent des Capucins, southward of Saint Tropez, open northward of La Pinède windmills, 94° true, leads northward of the shoal water off Pointe de Bertaud.

There is also anchorage off Plage de Grimaud, except with easterly winds. A jetty extends off the north part of the beach, where coasters load with sand.

**The north shore** of the gulf is bordered to the distance of from about  $1\frac{1}{2}$  to 4 cables by shoal water; Cap Drammont well open southward of Pointe des Sardinaux leads southward of it.

**Port de Sainte Maxime**, on the north shore of the gulf, and one mile north-eastward of Pointe Croisette, which is a little cliff, is available only for vessels of 9 feet and less draught, as it is encumbered with mud and weeds. It is protected by a small mole, extending about 180 yards south-westward from its southern part. The port is better sheltered from the north-west than Port de Saint Tropez, and is more frequented by coasting vessels, as they are able to weather Cap de Saint Tropez when bound to Toulon or Marseille with north-easterly winds. There are some mills near Sainte Maxime.

**Light.**—A light is exhibited from a watchhouse, with a support, on a circular tower, 35 feet high, and all white, on the extremity of the mole.

**Buoy.**—A red warping buoy lies north-westward of the head of the mole.

**Pilots.**—There are no regular pilots at Port de Saint Tropez or Port de Sainte Maxime, but one of the fishermen of the locality will act as pilot.

**The shore** from Port de Sainte Maxime (*Lat. 43° 18' N., Long. 6° 39' E.*) trends east-north-eastward nearly  $1\frac{1}{2}$  miles to Pointe des Sardinaux, and is bordered with rocks. Le Périguiet, a rock with  $3\frac{1}{2}$  fathoms water, nearly 3 cables south-eastward of Sainte Maxime mole, and La Fourmigue, a small rock which dries 2 feet, with shoal water  $1\frac{1}{2}$  cables south-eastward of it, half a mile east-north-eastward of Le Périguiet, are the outer shoals.

*General charts 2607, 1780, 2158a, 449.*

*Plan 1744, Gulf of St. Tropez. Var. 10° 35' W.*

**Pointe des Sardinaux**, the northern entrance point of Golfe de Saint Tropez, is low and surrounded with rocky shoals which extend eastward three-quarters of a mile, with no navigable passage  
5 between them and the point. Les Sardinaux, the outermost rocks, are above water, and La Sèche à l'Huile, with  $1\frac{1}{2}$  fathoms least water, lies about a quarter of a mile south-westward of them.

**Beacons.**—A red masonry tower, surmounted by a cone, 36 feet high, stands on Sèche à l'Huile, and a red masonry tower, surmounted  
10 by a cone, 26 feet high, stands on Les Sardinaux; the former beacon affords shelter for four people. There is deep water close southward of Sèche à l'Huile beacon, but shoal water extends  $1\frac{1}{2}$  cables north-eastward of Les Sardinaux beacon.

**Signal station.**—A semaphore, a white house and tower, 36 feet  
15 high, and 441 feet above high water, stands on a hill about a mile westward of Pointe des Sardinaux.

**Currents.**—The current sets out of the gulf after easterly winds, and into it after north-westerly winds, at a rate rarely above one knot.

*Chart 2607, Marseille to Agay road.*

**Baie de Bougnon** lies between Pointe des Sardinaux  
20 (*Lat. 43° 19' N., Long. 6° 41' E.*) and Pointe des Issambres,  $2\frac{3}{4}$  miles north-eastward. Basse Bougnon, with 6 feet water, lies about a cable off-shore in the middle of the bay. Toulon, Hyères, and Saint Raphael railway runs along the shore of the bay, and there are stations at  
25 La Nartelle and La Garonnette, which are visible from seaward.

**Pointe des Issambres** (Alexandre) is low, and rocks extend 2 cables off it; there is a Custom house on the point. View on chart 2607.

**Life-saving station.**—There is a station for rendering aid to  
30 shipwrecked mariners at Pointe des Issambres Custom house.

**GOLFE de FRÉJUS** lies between Pointe des Issambres and Cap Drammont, 7 miles north-eastward.

*Plan 3638, Golfe de Fréjus and Rade d'Agay.*

**The shore** from Pointe des Issambres trends northward  $2\frac{3}{4}$  miles  
35 to Pointe Saint Aygulf, and rises to hills covered with vegetation; it is bordered by rocks, of which the furthest off-shore, those off Pointe du Grand Louvan (du Gros Vallon), about half a mile southward of Pointe Saint Aygulf, extend 2 cables.

**Pointe Saint Aygulf** is low, and there are many houses on it;  
40 a sand beach commences  $1\frac{1}{2}$  cables north-westward of the point, and trends north-eastward about  $2\frac{3}{4}$  miles to Port Saint Raphael. Villa des Sables, a large and conspicuous building, stands on the middle of the beach, and nearly half a mile northward of the mouth of Rivière

*General charts 2607, 1780, 2158a, 449.*

*Plan 3638, Golfe de Fréjus and Rade d'Agay. Var. 10° 35' W.*

l'Argens, which flows into the road nearly a mile northward of Pointe Saint Aygulf. One mile north-westward from the head of the gulf, and on a low plain, is Fréjus town, with a cathedral having a large pointed steeple. View on chart 2607. La Montagne de Roquebrune, 1,217 feet high, westward of the town, is a large black hill, flattened at the summit and steep on its western side, view at page 130, whilst to the north-eastward is Montagne de l'Esterel, with three peaks, Mont Vinaigre, the highest, situated 5 miles from Saint Raphael, being 2,021 feet high. 5 10

**Port Saint Raphael** is within two moles; the outer one extends westward 236 yards on the southern side of the port, the other is a rocky bank extending from the north shore and terminating in a masonry mole 14 yards long. There is a depth of 13 feet in the port, and along the inside of the outer part of the outer mole is a trench 22 yards wide, with 18 feet water. Fresh north-westerly winds cause a choppy sea in the port, and southerly and south-westerly winds much surf. 15

**Light.**—A light is exhibited, at 30 feet above high water, from a white iron tower, 41 feet high, 60 yards inside the end of the outer mole (*Lat. 43° 25' N., Long. 6° 46' E.*) at Saint Raphael. 20

**Rade de Saint Raphael** is sheltered from the eastward and south-eastward by the islets and rocks off Pointe des Lions, and though open to the southward the holding ground is good. Merchant vessels anchor in from 7 to 9 fathoms water, 1½ cables west-south-westward from the outer mole of Saint Raphael, and vessels of war further out, in from 10 to 12 fathoms, with the old square steeple of Saint Raphael in line with the lighthouse at the end of the mole. 25

**Buoys.**—Two white buoys lie in the road north-westward of Lion de Mer, and southward of the port, and two black barrel buoys for the naval air service lie southward of the lighthouse. 30

**Saint Raphael town** is a winter resort and bathing place, with a population of about 4,250. The new church, with a large dome, is very conspicuous from seaward. Here the railway lines from Marseilles, Hyères, &c., to Ventimiglia, and from Hyères to Saint Raphael meet, and the former line continues eastward along the coast. 35

**Trade.**—The trade of Saint Raphael is very small, the principal export being bauxite, of which 46,822 tons were exported in 1913; iron ore, timber, and cork waste were also exported; 840 tons of cork, and 2,279 tons of coal were imported. 40

**Shipping.**—In 1913, 34 steam vessels, of 41,523 tons, and 16 sailing vessels, of 3,035 tons, entered the port.

**Supplies.**—Provisions can be obtained at Fréjus and at Saint Raphael. Water can be taken at all seasons from Rivière d'Argens

*General charts 2607, 1780, 2158a, 449.*



*Plan 3638, Golfe de Fréjus and Rade d'Agay. Var. 10° 30' W.*

and Ruisseau de la Garonne, which flows into the sea immediately westward of the north mole, but the town and port are now supplied directly by Canal de la Siagnole; there is a water pipe on the end of  
5 the outer mole.

**Life-saving station.**—A rocket apparatus is stationed at Saint Raphael Custom house.

**The shore** from Port de Saint Raphael trends south-eastward a little more than one mile to Pointe des Lions; it is bordered by rocks,  
10 and the 5-fathom line is about  $1\frac{1}{2}$  cables off it.

**Les Lions** are two large reddish islets of rocks; Lion de Terre is close off Pointe des Lions, with no passage between, and shoal water extends about half a cable southward from it; Lion de Mer, 3 cables westward of Lion de Terre, is 39 feet high, and surrounded by small  
15 rocks above water. There are depths of from 10 to 18 fathoms in the passage between them.

**The coast** from Pointe des Lions trends eastward 3 miles to Cap Drammont, and is low, with villas on it, the land rising to high wooded hills; it is bordered by rocks to from a half to  $1\frac{1}{2}$  cables. Saint Joseph  
20 orphanage, a large building, is situated about midway between the point and cape, and  $3\frac{1}{2}$  cables inland. Near the cape are important porphyry quarries, sometimes well lighted at night.

**Cap Drammont** (*Lat. 43° 25' N., Long. 6° 51' E.*) is the southern extreme of a rounded projection, 482 feet high; around it are  
25 several rocks. Views on charts 2607, 2609. Ile d'Or lies about a cable off the south-western side of the projection, and Basses de l'Ile d'Or, the highest head of which is awash, extend south-westward  $1\frac{1}{2}$  cables from it.

A rock with  $4\frac{1}{2}$  feet water lies about a cable off Pointe de l'Ay,  
30 which is situated 2 cables eastward of Ile d'Or.

**Signal station.**—There is a semaphore, a white house and tower, 36 feet high, on a hill 482 feet high, about 2 cables northward of Cap Drammont.

**The coast** from Cap Drammont trends northward 7 cables to  
35 Pointe Longue and is rocky.

**Rade d'Agay**, the entrance to which is between Pointe Longue and Pointe de la Beaumette,  $4\frac{1}{2}$  cables east-north-eastward, extends northward about 7 cables. On the west side of the road, and half a mile northward of Pointe Longue, are a Custom-house, a chapel and  
40 an obelisk (now unnoticeable), and a conspicuous hotel; a little further northward is a railway bridge, the station being between it and a second railway bridge with three arches which crosses the small Rivière d'Agay. The north shore of the road is a fine sandy beach,

*General charts 2609, 2607, 1780, 2158a, 449.*

*Plan 3638, Golfe de Fréjus and Rade d'Agay. Var. 10° 30' W.*

which extends from the railway station to Château d'Agay, and on it are stone posts for mooring small vessels. The red cliffs of Mornes Rouges d'Agay, about half a mile northward of the beach, are noticeable.

A pile pier, 147 feet long and 14 feet wide, extends from the head of the road; there is a depth of 9 feet at its outer end.

On the east side,  $2\frac{1}{2}$  cables northward of Pointe de la Beaumette, is Château d'Agay, a large farm flanked by two buildings and surrounded by walls.

**Le Périguiet**, a rocky bank, with 7 fathoms water, lies a quarter of a mile eastward of Pointe Longue; vessels should not anchor on it.

**Pointe de la Beaumette** (*Lat. 43° 26' N., Long. 6° 52' E.*) is low, and rocks extend nearly a cable off it.

**LIGHT.**—A light is exhibited, at 92 feet above high water, from a square tower with a house, 50 feet high, situated on Pointe de la Beaumette.

**Anchorage.**—The road is open south-south-eastward, but is otherwise sheltered, and is frequented by vessels during mistrals. Large vessels anchor southward of a line from Morne Peyssaring, 558 feet high, through Château d'Agay, about 74° true, in about 9 fathoms water; and small vessels near the head of the bay, in about 3 fathoms water. Vessels sheltering from a mistral should moor with the anchors north-east and south-west.

**Directions.**—From the westward give Ile d'Or and Cap Drammont a wide berth until Château d'Agay is well open eastward of Pointe de Camp Long, on the eastern side of the cape projection. At night, the white sector of Pointe de la Beaumette light in sight passes at least half a cable seaward of the shoals on the south-east side of Cap Drammont. From the eastward pass southward of La Chrétienne tower, and 2 cables southward of Pointe de la Beaumette.

When easterly wind is not well established in the offing, be prepared at the entrance to the road for north-westerly squalls, which come down the valley of Rivière d'Agay; in summer these squalls generally cease about 10h. a.m., and begin again in the evening, but in winter the north-west wind generally blows nearly all day, and when it fails fresh easterly or south-easterly winds will probably follow.

**Water.**—The mouth of Rivière d'Agay is dry except during rains; during summer the water becomes stagnant and undrinkable, but water can always be obtained from a well near Château d'Agay.

*General charts 2609, 2607, 1780, 2158a, 449.*

*Plan 3638, Golfe de Fréjus and Rade d'Agay. Var. 10° 30' W.*

**Life-saving station.**—A rocket apparatus is stationed at Agay Custom house.

**The coast** from Pointe de la Beaumette trends eastward one mile to a point, about a cable off which are Les Vieilles d'Agay; it is broken and rocky, and some small islets lie close off it, and it rises to wooded hills, with barren summits, Morne Peyssaring, the eastern of which, being 558 feet high.

**Les Vieilles d'Agay** are a little flat islet, 27 feet high, and a group of rocks by which it is surrounded; there is no passage inshore of the islet.

Rocher de la Boute,  $1\frac{1}{2}$  cables southward of the islet, is 6 feet high, and resembles a cask in the water, and about 65 yards to the north-westward is a rock with  $3\frac{1}{4}$  fathoms water.

**La Chrétienne.—Beacon.**—About  $1\frac{1}{2}$  cables southward of Rocher de la Boute, is La Chrétienne, a rock with 5 feet water. A red masonry tower surmounted by a cone, 31 feet high, stands on the rock. There is a depth of 7 fathoms between La Chrétienne and Rocher de la Boute. The red sector of Pointe de la Beaumette light covers the area between the coast and 2 cables southward of La Chrétienne.

*Chart 2609, Rade d'Agay to San Remo.*

**The coast** from Les Vieilles d'Agay (*Lat.*  $43^{\circ}25'N.$ , *Long.*  $6^{\circ}54'E.$ ), which is high and rugged, and skirted to a short distance with rocks, trends north-eastward  $1\frac{3}{4}$  miles to Cap Roux, and thence north-north-eastward to  $2\frac{1}{4}$  miles to Cap de l'Aiguillon. At the head of a little bay half a mile northward of Les Vieilles d'Agay, is a conspicuous railway viaduct. Cap Roux rises at less than a mile north-westward to Montagne de Cap Roux, which is irregular in outline and steep; its reddish cliffs contrast with the dark forests of pine around; there is a small tower on its summit, 1,486 feet above high water. The cape is relatively low and projecting, and rocks extend about 2 cables south-eastward from it; although it can be approached to the distance of 3 cables, it is not advisable to close it to less than one mile to avoid the squalls which come down near the land when the wind is fresh from the north-westward.

*Plan 2822, Gulfs of Napoule and Juan.*

**Anchorage.**—Baie de la Figuerette, westward of Cap de l'Aiguillon, affords open anchorage in 4 to 6 fathoms sheltered from north-westerly winds about one cable from the shore and 3 cables westward of Pointe de la Paume, the south point of the cape.

**Cap de l'Aiguillon** is 335 feet high, and steep, the land around being well wooded; Rocher de la Vaquette, 3 feet high, and sur-

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

rounded by shoal water to distances of nearly a cable, lies 3 cables south-eastward of it. The coast between Cap de l'Aiguillon and Pointe Epinasse (Espinasse), three-quarters of a mile to the northward, is steep cliffs, which rise to reddish hills about half a mile inland, the highest of these being 850 feet high. The steep north-eastern slope of the hills terminates in Pointe de l'Aiguille,  $5\frac{1}{2}$  cables northward of Pointe Epinasse. Pointe de l'Aiguille is a pyramidal rock, the south-west extreme of Golfe de la Napoule.

Rocks above and below water extend a cable off Pointe Epinasse, and Rocher du Port, with 3 feet water, lies about  $1\frac{1}{2}$  cables south-eastward of Pointe de l'Aiguille; both points should not be closed to less than 2 cables distance.

**GOLFE de la NAPOULE** extends northward about  $2\frac{3}{4}$  miles from its entrance between Pointe de l'Aiguille and les Îles des Lérins, about  $3\frac{1}{4}$  miles to the eastward; being open to the southward and having deep water throughout, it is seldom frequented. The 100-fathom contour line is 4 cables off the beach at the head.

Baie de Théoule, the south-western part of the gulf, between Pointe de l'Aiguille and the viaduct over Rivière de la Rague, affords anchorage near Théoule village sheltered from winds between north-west and south-east, through south-west, in about 9 fathoms, sand and mud. There is also anchorage off La Napoule village (*Lat. 43° 32' N., Long. 6° 57' E.*), about half a mile further northward, in about 10 fathoms water. Both anchorages are near the shore.

There is a small jetty at Théoule where boats can land.

**Life-saving station.**—There is a station for affording aid in case of shipwreck at Théoule village Custom house.

**The shore** of the gulf from La Napoule is a sandy beach, which curves northward and eastward  $3\frac{1}{4}$  miles to Port de Cannes; the 5-fathom line is from one to 2 cables off it, and inside this line the water shoals quickly.

**PORT de CANNES**, which will receive vessels of 18 feet draught and 300 feet in length, is protected from the south-west by Jetée Ouest, a mole extending about  $1\frac{1}{4}$  cables south-eastward. Jetée Albert Edouard extends  $2\frac{1}{2}$  cables southward and south-westward on the east side of the port, leaving an entrance, between its extreme and the inner angle of Jetée Ouest, about a cable wide. The port, which is also sheltered by Îles Sainte Marguerite and Saint Honorat has been dredged to a depth of 20 feet in places, the bottom is sand and mud in the middle; there is a depth of 18 feet alongside the inner part of Jetée Ouest and along the southern part of Quai Saint Pierre, the western quay, but the northern part of the port is shoal and strewn with rocks. There are mooring rings along

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

the quays and Jetée Albert Edouard, to which vessels haul their sterns after anchoring. A jetty, 130 feet long, extends from near the entrance to the Boulevard de la Croisette for the use of yachts.

- 5 **Lights.**—A light is exhibited from a white circular turret, 39 feet high, on the inner angle of Jetée Ouest.

A light is exhibited from a black iron column, 20 feet high, on the outer end of Jetée Ouest.

- 10 A light is exhibited from a red masonry tower, 32 feet high, on Le Sécant, a rocky shoal, with three-quarters of a fathom least water, about half a cable south-south-westward of the outer end of Jetée Albert Edouard, and on the eastern side of the entrance to the port.

- Outer shoals.**—Finié rock (*Lat. 43° 33' N., Long. 7° 0' E.*), with 15 5½ fathoms water, lies 2 cables off-shore nearly a mile westward of Jetée Ouest. The rock marks a division in the nature of the bottom of the gulf; westward of the rock the bottom is mud; eastward and towards the land, weed; seaward, sand and some rocks.

- 20 La Fouillée, with 3½ fathoms water on each of its two rocky heads, lies 3½ cables off-shore and 5 cables west-south-westward from the outer end of Jetée Ouest. About half a cable south-eastward of La Fouillée is a rock with 3¾ fathoms water.

La Lière (Roche de la Rade), with 4¾ fathoms water, lies 3 cables southward from the outer end of Jetée Ouest.

- 25 Between La Fouillée and La Lière are La Roure with 8 fathoms water; Le Pigeonnier with 11 fathoms; and La Traille with 10 fathoms.

Le Four à Chaux, with 3¾ fathoms least water, lies 3½ cables eastward of La Lière.

- 30 **Rade de Cannes.**—The part of the road where it is convenient to anchor lies between the line of the two square towers on the west, and the cathedral tower (the lower of the two) in line with the light-turret on Jetée Ouest on the east; the best position is in from 7½ to 9 fathoms, sand and mud, about 1½ cables southward of Jetée Ouest head, or, if necessary, farther out, avoiding the rocky heads. The 35 3-fathom line is about 3½ cables off the north-eastern shore of the road, in places between Jetée Albert Edouard and Pointe Croisette, nearly 1½ miles south-eastward.

- 40 Southerly winds cause a very heavy sea in the road, and a vessel at anchor there, if unable to enter the port, should go to sea on their setting in, and obtain shelter in Golfe Juan.

**Directions.**—To enter the port pass between La Fouillée and La Lière, and close eastward of the outer end of Jetée Ouest; then

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

pass westward of Sécant de Cannes tower and anchor, hauling the stern to the quay (*Lat. 43° 33' N., Long. 7° 1' E.*).

**The town.**—Cannes is a modern town, the only old part being on the shore of the port and at the foot of Mont Chevalier, a hill on the summit of which are two large square towers, the lower being that of the cathedral, and the higher, which is partly made of pottery, is Tour de l'Observatoire. There are numerous houses and villas along the shore and up the hills in the vicinity of the old town; the population in 1911 was 29,659.

Boulevard Jean Hibert (formerly Boulevard du Midi) extends along the sea front westward of Cannes to La Napoule,  $4\frac{1}{2}$  miles from the port, and connects it with the Corniche road to Saint Raphael. Cannes has a supply of good water, brought in pipes from a place 25 miles northward of the town, and 2,460 feet high.

The climate being mild, dry, and uniform, Cannes is much resorted to by invalids, especially during winter. Cannes is the seaport of Grasse, a town, about 8 miles north-westward, celebrated for its manufactories of perfumery and liqueurs.

A British Vice-Consul is stationed at Cannes.

**Trade.**—The principal articles of import are coal, cereals, timber, coke, charcoal, pottery, and glass, and of exports coal, old iron, and fireproof earthenware. In 1913 the value of the imports was £79,555, and that of the exports £6,500. The local industries are principally the management of the hotels and the cultivation of flowers.

**Shipping.**—In 1913, 21 steam vessels, of 18,759 tons, and 13 sailing vessels, of 1,344 tons, entered the port.

**Supplies.**—Meat, vegetables, and bread, are plentiful. Pure water can be obtained from the quay.

**Coal.**—About 25,000 tons of coal are imported annually, and about 7,000 tons are usually in stock during the winter and from 1,000 to 2,000 tons in summer. The coal is carted to Jetée Albert Edouard, where there is a depth of 16 feet alongside for a length of 300 feet at its outer end, and it is said that it can be put on board in baskets at the rate of from 100 to 200 tons a day, but this is doubtful.

**Repairs.**—Only very small repairs can be executed.

**Life-saving station.**—A rocket apparatus is stationed at Cannes Custom house.

**Pointe Croisette** projects southward about 6 cables from the coastline and is low, with fine orange groves and many houses on it. A small tower in ruins stands on the point, and shallow rocky ground connects it with Ile Sainte Marguerite.

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

**Telegraph cable.**—A telegraph cable runs between Pointe Croisette and the north coast of Île Sainte Marguerite, close eastward of the citadel. Pairs of beacons at both ends indicate its direction, near which anchorage is prohibited; each beacon is painted blue and white in horizontal stripes, and surmounted by a white disc.

**ÎLES de LÉRINS** (ancient Lerinus and Lero) are two large and low islands and several islets, situated from about 7 cables to nearly 2 miles south-south-eastward of Pointe Croisette.

**Île Sainte Marguerite**, the northern and larger island, is  $1\frac{1}{2}$  miles long east and west, with a greatest breadth of about half a mile; it is well wooded, except at its west and east points, which are very low; on its north and highest part, 144 feet, is a large citadel (*Lat. 43° 31' N., Long. 7° 3' E.*), and there is a battery on the east point. The island is skirted by rocks and shoal water except near the citadel, where there is anchorage, avoiding the telegraph cable.

Pointe Batiguiier is the north-western point of the island, and the rocky Plateau de la Jonquière extends  $2\frac{1}{2}$  cables northward of it and along the coast to the citadel. Tourelle de Batiguiier, a masonry beacon, painted red and white in horizontal stripes, and surmounted by two cones, points together, and 15 feet high, stands on the plateau  $1\frac{1}{2}$  cables north-westward of the point.

Bronde de Batiguiier, a rock with  $5\frac{1}{4}$  fathoms water, lies 2 cables west-north-westward of Tourelle de Batiguiier; the sea often breaks on it with southerly winds. The abbey of Saint Honorat open south-westward of Pointe du Dragon, the south-western point of Sainte Marguerite, leads south-westward of the rock. View at page 130.

Basse du Vengeur, with  $3\frac{1}{2}$  fathoms water, lies 2 cables off-shore about  $3\frac{1}{2}$  cables westward of Point de la Convention, the east point of the island. Mont Barbossi, a remarkable summit of the Esterel range, open northward of the sentry box on the north-west angle of the citadel, leads northward of the shoal. View at page 146.

**Île de la Tradelière**, one cable off the east end of the island, with foul ground in the passage between, is very low and bordered by shoal water: it should be given a berth of more than a cable. The islet and shoal water off it are covered by a *red* sector of Pointe de l'Illette light, and by a *green* sector of Golfe Juan light.

**The passage** between the shoals southward of Pointe Croisette, of which the most distant are Les Gaous (Roches du Passage), and Plateau de la Jonquière is, under favourable circumstances, available for vessels of not more than 8 feet draught, but it is narrow.

The pine trees on Pointe du Vengeur just open northward of the rocks at the base of the citadel,  $110^\circ$  true, view at page 130, leads

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

about 2 cables northward of Tourelle de Batiguiet and through the passage in not less than 10 feet water.

Or the sentry box on the north-west bastion of the citadel in line with a gable of a building, 125° true, leads through the passage in 10 feet water, but only about 50 yards southward of Les Gaous. View at page 146. Give a berth of one cable to the citadel. 5

**Anchorage.**—Large vessels anchor northward or north-eastward of the citadel (*Lat. 43° 31' N., Long. 7° 3' E.*) in from 8 to 10 fathoms water, avoiding the telegraph cable. The anchorage is sheltered, except from the eastward, from winds from seaward; the bottom is mud and sand covered with weeds. 10

**Landing.**—A small pier, 210 feet long, with 8 feet water at its outer end, westward of the citadel, affords landing for boats, but a shoal with 5 feet water has to be passed over in approaching it. There is also a pier, 131 feet long, with 10 feet water at its outer end, half a cable eastward of the pier just mentioned. 15

**Ile Saint Honorat**, 4 cables southward of Ile Sainte Marguerite, is about three-quarters of a mile long east and west, 2 cables broad, low, and flat. On its south side is an abbey, and a new steeple shows over the trees; on Pointe Saint Féréol, the east end, is a chapel; both the abbey and chapel are in ruins. Ile Saint Féréol, a large low rock, surrounded by several smaller ones, and foul ground, lie within 3 cables from Pointe Saint Féréol. 20

**Les Moines.—Beacon.**—Islets, rocks, and foul ground extend nearly 6 cables southward and south-south-eastward from about the middle of the south coast of the island. 25

A masonry tower, painted black and white in horizontal stripes, and surmounted by a diamond, 26 feet high, stands nearly 1½ cables inside the outer rocks. The beacon should be given a berth of more than 3 cables. 30

Cap Ferrat lighthouse open south-eastward of Cap d'Antibes leads south-eastward of Les Moines.

The shoals are covered by a red sector of Pointe de l'Ilette light.

There are depths of over 50 fathoms about 3 cables southward of the shoals. 35

**Life-saving station.**—There is a station for affording aid in case of shipwreck at the abbey, Saint Honorat.

**The passage** between Sainte Marguerite and Saint Honorat can be used by vessels of less than 10 feet draught, when unable to round Les Moines, by keeping about a cable off the south coast of Sainte Marguerite, so as to avoid Plateau du Grand Jardin, which borders 40

*General charts 2609, 1780, 2158a, 449.*



*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

that coast, on the north side, and Plateau du Milieu, a bank of shingle covered with weeds, with 5 feet water in the middle of the passage, on the south side. Château Napoule just open northward of Mont Barbossi leads through, but the channel is only 140 yards wide. View at this page.

**Anchorage.**—There is anchorage between Îles Sainte Marguerite and Saint Honorat, westward of a line from the abbey through a round white watchhouse on the north coast of Saint Honorat, avoiding the telegraph cable. There is also anchorage eastward of Plateau du Grand Jardin. The bottom at both anchorages is sandy mud and weeds, good holding ground.

**GOLFE JUAN** extends about 2 miles northward between Pointe Croisette (*Lat. 43° 32' N., Long. 7° 5' E.*) and Cap d'Antibes, nearly 3½ miles eastward, and it is sheltered from the south-west by Îles de Lérins. The north-west shore of the gulf from Pointe Croisette, which is low, rises and becomes rocky and blackish at Pointe Fourcade, one mile north-eastward; a little northward of this point is a large battery with a viaduct near it. The hills then become moderately high, and are covered with vegetation and villas. This shore is bordered by shoal water to a distance of from 2 to 5 cables. The shore of the head of the gulf is low, with sandy beaches; the east shore is steep, well wooded, and bordered by rocks.

**Rochers de la Fourmigue.—Beacon.**—In the middle of the entrance to the gulf, and about 2 miles eastward of Pointe Croisette are the low and black Rochers de la Fourmigue, on the highest (8 feet) of which is a red masonry tower, surmounted by a cone, 47 feet high. The beacon is about 140 yards southward of the northern rock of the group, and the same distance northward of the southern rock, which has 2 feet water.

**Basses de la Fourmigue**, with from 2¾ to 4¼ fathoms water, extend about three-quarters of a mile eastward of La Fourmigue beacon and across the entrance of the gulf; there are deep passages between them.

**Basse Sécanion** (Orientale), the eastern shoal, about 8 cables westward of Pointe de l'Ilette lighthouse, has 2¾ fathoms water, and Passe de l'Est is the channel between it and Pointe de l'Ilette to the eastward.

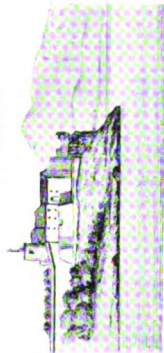
**Buoy.**—A black spindle buoy, surmounted by a cylinder, is moored on the north-east side of Basse Sécanion. The 5-fathom line is nearly half a cable north-eastward of the buoy.

*General charts 2609, 1780, 2158a, 449.*

*Mt. Barbossi.*

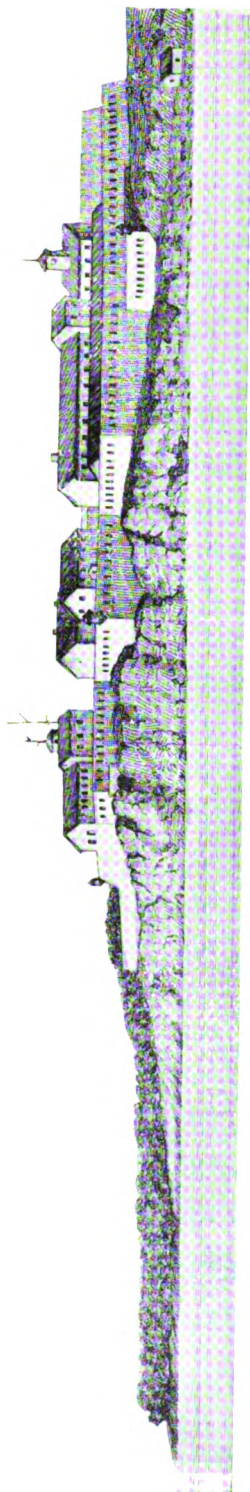


*Mt. Barbossi.*



*La Rague  
viaduct.*  
*Château de la  
Napoule.*  
Passage between Îles Sainte Marguerite and  
Saint Honorat.—Leading mark.

*Île Sainte Marguerite. Sentry box.*  
Basse du Vengeur.—Mark leading  
north of.



*Pointe du Vengeur.*

*Old semaphore.*  
*Sentry box between  
two chimneys.*

Île Sainte Marguerite, from midway between Pointe Batiguier and Pointe Croisette.

*Landing.*



*Pointe de l'Îlette.*

*Tour Graillon.*  
*L'Îlette lighthouse (now a  
white circular tower).*  
*Hotel du Cap.*

Cap de la Garoupe, from Sèche de Saint Pierre.



*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

**Clearing marks.**—Pointe de l'Ilette lighthouse in line with Eilenroc, a castle with a flat roof on the east side of Anse de la Cour Patassière, 75° true, leads southward, and Villa des Chênes Verts just open northward of Tour Graillon, a round tower, 66 feet high, near 5 Hotel du Cap, 79° true, leads northward of all the shoals.

*Red* sectors of Pointe de l'Ilette and Golfe Juan lights cover Rochers and Basses de la Fourmigue.

**Depths.**—There are depths of from 11 to 33 fathoms in Passe de l'Ouest, between half a mile eastward of Pointe Croisette and 10 Rochers de la Fourmigue, and of 9 to 26 fathoms in Passe de l'Est. Northward of the entrance to the gulf the depths decrease, and the 5-fathom line is distant from 4 to 7 cables from the head of the gulf. A detached patch, with 4½ fathoms water, lies 6 cables south-eastward of Golfe Juan south molehead, and Sèche de la Verne, a rocky 15 patch with 6 feet water, lies 3 cables off the north-east shore of the gulf.

**Port de Golfe Juan.**—On the north-western shore of the gulf, about 2½ miles from Pointe Croisette, is Golfe Juan village, and a small port within two moles, which affords shelter, except from north-east, through east, to south, to vessels of 10 feet draught. The south 20 mole extends south-eastward one cable from the shore and thence eastward 1½ cables; the north mole extends southward a little over a cable from the shore about a quarter of a mile eastward of the inner end of the south mole, leaving an entrance between their outer ends 25 about half a cable wide; the port has depths of from one to 2 fathoms.

**LIGHTS.**—A light is exhibited, at 55 feet above high water, from a white circular tower, 55 feet high, situated on the beach, about a cable south-westward of the inner end of Golfe Juan south mole.

A light is exhibited from a black iron column, 21 feet high, on the 30 outer end of Golfe Juan south mole.

**The village** (*Lat. 45° 34' N., Long. 7° 4' E.*) is situated on the shore of the port, and has a railway station. Villa Lydia, flanked by a square tower, surmounted by a light green dome and a spire, 62 feet high, is situated in the eastern part of the village and near the beach. 35 Vallauris, 1¼ miles north-westward, is a town noted for its pottery manufactories, and has a population of about 3,000.

**Supplies.**—Fresh meat, vegetables, and bread can be obtained in the village, and provisions of all kinds from Cannes and Antibes. Water is laid on to the south mole and also to the quay on the north- 40 west shore of the port.

**Life-saving station.**—A rocket apparatus is stationed at Golfe Juan Custom house.

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

**Plateau de Lampadour** or Graillon, a shoal with  $2\frac{1}{4}$  fathoms water, lies  $1\frac{1}{2}$  cables westward of the point on which is Tour Graillon.

**Sea level.**—With southerly winds a rise of one foot above the normal has been observed in Golfe Juan.

**CAP d'ANTIBES (de la Garoupe)** is a peninsula which extends south-south-eastward about 2 miles from the coastline; it rises gradually northward to a hill, 250 feet high,  $1\frac{1}{4}$  miles from Pointe de l'Ilette, its southern extreme. On the hill are a lighthouse, a semaphore, and Chapelle de Notre Dame d'Antibes, with a square tower. Pointe de l'Ilette (*Lat. 43° 33' N., Long. 7° 7' E.*) is low, and bordered by rocks to the distance of  $1\frac{1}{2}$  cables; about 3 cables eastward of it is a large round point, particularly named Cap de la Garoupe. Anse de la Cour Patassière, between the point and cape, is open to the southward. The coast thence north-eastward becomes irregular and higher, and  $1\frac{1}{4}$  miles distant is Cap Gros. View on chart 2609, and at page 146.

**Sèche de Saint Pierre**, or Plateau de la Garoupe, nearly 2 cables southward of Pointe de l'Ilette, is rocky with  $2\frac{3}{4}$  fathoms water; its western side is steep-to.

**LIGHTS.**—**Pointe de l'Ilette.**—A light is exhibited from a white circular tower, 31 feet high, situated about one cable north-westward from Pointe de l'Ilette.



La Garoupe lighthouse.

**La Garoupe.**—A light is exhibited, at 338 feet above high water, from a white circular tower with a basement, 88 feet high, near Chapelle de Notre Dame.

**Signal station.**—There is a semaphore, a white house and tower, 33 feet high, near La Garoupe lighthouse.

**Directions.**—There are two passages into the gulf, Passe de l'Ouest, between Rochers de la Fourmigue and Sainte Marguerite, and Passe de l'Est, between Cap d'Antibes and Basse Sécanson. Passe de l'Ouest is the better, being about a mile wide and clear, excepting Basse du Vengeur (page 144). From the westward, pass at least one mile southward of Île Saint Honorat, and about 4 cables eastward of Île de la Tradelière, when steer 349° true, which leads a quarter of a mile westward of La Fourmigue beacon, and thence proceed to the anchorage.

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

Passe de l'Est is about 6 cables wide. From the eastward, keep Cap Ferrat lighthouse, or Montagne de la Tête de Chien, a rocky peak, westward of Monaco, open south-eastward of Cap d'Antibes until Tour Graillon is open westward of Pointe de l'Ilette lighthouse, to clear Sèche de Saint Pierre. Then steer for Villa Lydia, passing about 3 cables westward of Pointe de l'Ilette lighthouse, and eastward of Basse Sécanion buoy. 5

At night, a white sector of Golfe Juan light leads through Passe de l'Ouest, its limits passing 3 cables eastward of Ile de la Tradelière and 1½ cables westward of Rochers de la Fourmigue. The other white sector of Golfe Juan light leads through Passe de l'Est, its limits passing about a cable south-westward of Sèche de Saint Pierre, and the same distance north-westward of Basse Sécanion. 10

**Anchorage** in the gulf are roomy, and extend between Golfe Juan village and Rochers de la Fourmigue, and also eastward of this line; the bottom is mud and weeds, good holding ground. It is a little sheltered from the southward by Rochers and Basses de la Fourmigue. Large vessels anchor in from 7 to 10 fathoms, with La Fourmigue beacon bearing westward of 180° true, and La Garoupe lighthouse bearing between 65° and 71° true. Small vessels anchor more to the northward, in from 5½ to 6½ fathoms, with Villa Lydia bearing between 315° and 327° true, and La Garoupe lighthouse northward of 90° true. 15 20

The north limit of the anchorage for large vessels is the alignment of the south gable of a house with two dormer windows and a belvedere, and the southern gable of Chapelle de Notre Dame d'Antibes. View at page 150. 25

Mouillage du Piton, on the eastern side of the gulf, is sheltered from easterly winds, but southerly winds cause a very heavy sea. Anchor in from 7½ to 9 fathoms north-westward of Tour Graillon with La Garoupe lighthouse bearing 60° true, and keep ready to get under way. 30

North-west winds blow violently at times, and last from 2 to 18 days.

**Anse de la Garoupe**, situated between Cap Gros and Pointe Bacon, one mile to the northward, extends south-westward about 3 cables; it is rarely used as an anchorage. A small mole at the head of the bay affords shelter to fishing vessels. 35

**Pointe Bacon** (Cap Nègre) (*Lat. 43° 34' N., Long. 7° 9' E.*) rises gradually to the hill on which the lighthouse stands, about half a mile south-westward; there are the ruins of a battery on the point. 40

**Anse de la Salis** (de Bacon), situated between Pointe Bacon and the town of Antibes, about three-quarters of a mile north-north-westward, extends about 4½ cables west-south-westward; shoal water

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

with rocky bottom extends more than 2 cables off its southern shore. Northerly and easterly winds blow directly in.

**Shoals.**—*Ilot de la Grenille* (la Grille), low and black, is situated  
 5 one cable north-eastward of *Pointe Bacon*, and rocks, with  $1\frac{1}{2}$  fathoms  
 least water, extend a cable beyond it. *La Péquerolle* (Basse de Bacon)  
 3 cables eastward from *La Grenille*, has 7 fathoms water, and 15 to  
 37 fathoms close around. A heavy sea rises over *La Péquerolle* in  
 bad weather, when it should be avoided. The whole of *Fort Carré*  
 10 open north-eastward of *Bastion des Cinq-Cents-Francis*,  $307^\circ$  true,  
 leads north-eastward of the rock. *Antibes* east mole light shows over  
*La Péquerolle*, but is obscured over *La Grenille* shoals.

*La Petite Grenille* lies in the bay 4 cables westward of *La Grenille*,  
 and shoal water extends nearly one cable north-eastward from it.

15 *Le Clapier*, a rock with  $3\frac{1}{4}$  fathoms water, lies  $1\frac{1}{2}$  cables off-shore,  
 midway between *La Grenille* and *La Petite Grenille*.

**Anchorage.**—There is anchorage, with north-westerly winds, in  
 from  $5\frac{1}{2}$  to 11 fathoms water, sand and mud, good holding ground,  
 with the eastern part of *Fort Carré* slightly open eastward of *Bastion*  
 20 *des Cinq-Cents-Francis*, but it is better to anchor off the entrance to  
*Port d'Antibes*.

**PORT d'ANTIBES** is within two moles; the eastern one, con-  
 structed upon a bed of rocks, extends about  $1\frac{3}{4}$  cables northward from  
 the town, and to within the same distance from the coast of *Fort*  
 25 *Carré* peninsula; on it is a high shelter wall. The rocks from the  
 central part of the mole project seaward, and on them is *Bastion des*  
*Cinq-Cents-Francis*. About a cable westward of the eastern mole,  
 and nearly parallel to it, is the western mole, enclosing a space, with  
 depths of  $2\frac{3}{4}$  to 3 fathoms. The entrance is 240 feet wide. The port  
 30 can only receive vessels of 15 feet or less draught, and not exceeding  
 260 feet in length.

**Sèche des Cinq-Cents-Francis** (*Lat.*  $43^\circ 35' N.$ , *Long.*  $7^\circ 8' E.$ )  
 extends  $1\frac{1}{2}$  cables north-eastward from *Bastion des Cinq-Cents-Francis*;  
 it has a least depth of  $1\frac{1}{2}$  fathoms, and a black spindle buoy, sur-  
 35 mounted by a cylinder, is moored on its north-western side, but it is  
 liable to be washed away.

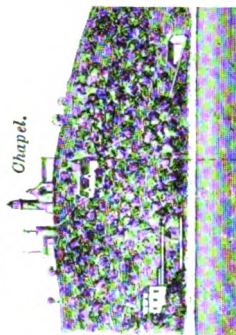
**LIGHTS.**—A light is exhibited, at 49 feet above high water,  
 from a white circular tower, 37 feet high, on the eastern molehead,  
 at the entrance to *Port d'Antibes*.

40 A light is shown from the western molehead, and from the mole.

**Anse de Saint Roch**, or de la Petite Mer, extends about a  
 quarter of a mile northward of the town and westward of the port;  
 on its low western shore is the railway station and the little grey

*General charts 2609, 1780, 2158a, 449.*

*La Garoupe lighthouse.*

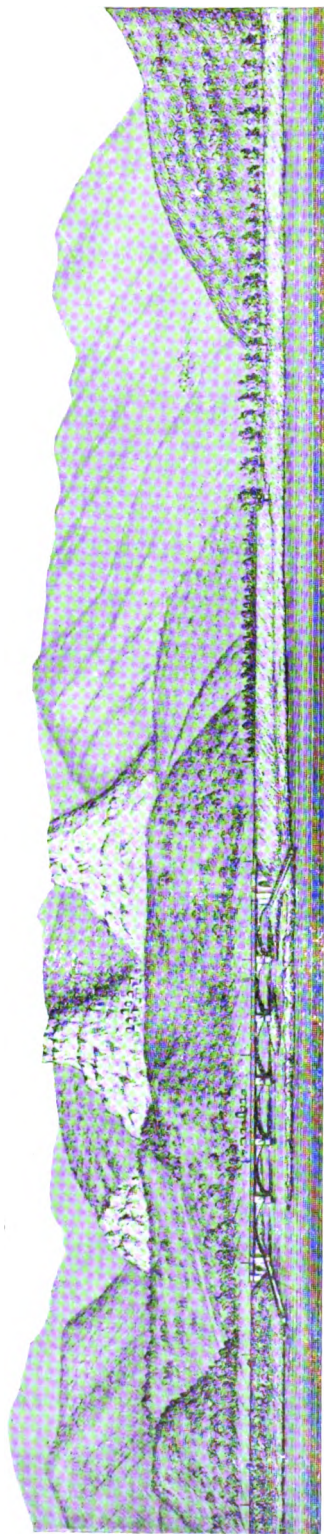


*Chapel.*

*House with two windows.*

Golfe Juan.—North limit of anchorage.

*Rocher Saint Jeannel.*



*Saint Laurent.  
Saint Jeannel.*

Mouth of Rivière du Var, one mile north-north-westward.

*Mont Cudro.*





*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

Chapelle de Saint Roch. There are depths of less than one fathom in the bay.

**Buoys.**—Three white mooring buoys are anchored along the coast and about half a cable from the rocks south-eastward of Fort Carré. 5

**Directions.**—Approaching Port d'Antibes from the southward keep Cap Gros open eastward of Pointe Bacon until the south angle of the cemetery, which is on the north-western side of the town, is open northward of the lighthouse, to clear Sèche des Cinq-Cents-Francis. Then turn sharply westward, passing northward of the black buoy, and round the lighthouse close-to, to avoid the shallow ground in Anse de Saint Roch, and a concrete foundation extending 33 feet from the head of the western mole. 10

From the northward or eastward steer for the peninsula of Fort Carré, keeping Chapelle de Notre Dame d'Antibes open eastward of Bastion des Cinq-Cents-Francis until Chapelle de Saint Roch is open southward of the rocks off Fort Carré. Then steer for the lighthouse, leaving the white mooring buoys to the northward. 15

Anchor in the middle of the port and moor with a hawser from the stern to one of the bollards on the eastern mole, where there is a depth of 16 feet. 20

With strong easterly winds a dangerous bar extends between Cinq-Cents-Francis and Fort Carré, which breaks and renders entrance difficult, sometimes even impracticable.

**Anchorage.**—There is anchorage, if necessary, northward or north-eastward of Sèche des Cinq-Cents-Francis, but the holding ground is not good, and a vessel must be ready to enter the port should the wind change to the eastward. 25

**Antibes town** (the ancient Antipolis) (*Lat. 43° 35' N., Long. 7° 8' E.*) is strongly fortified, especially on the land side; it contained about 12,198 inhabitants in 1911, who are principally employed in fishing and curing sardines and anchovies. Antibes exports chiefly grain, flour, and oilcake, and the railway passes close westward of the town. 30

**Supplies.**—Provisions can be obtained. There are three water pipes on the southern quay of the port. 35

**Coal.**—There is a stock of from 30 to 300 tons of coal in the town; it varies according to the season.

**Repairs** can be effected at the building yards, where yachts and motor-boats are constructed.

**Life-saving station.**—A rocket apparatus is stationed at Antibes Custom house. 40

**Telegraph cable.**—**Beacons.**—A cable is landed in the cove northward of Fort Carré, and two beacons, each painted blue and

*General charts 2609, 1780, 2158a, 449.*

*Plan 2822, Gulfs of Napoule and Juan. Var. 10° 30' W.*

white in horizontal stripes, and surmounted by a white disc, on the shore, in line indicate its direction, near which anchorage is prohibited.

5 *Chart 2609, Rade d'Agay to San Remo.*

**Baie des Anges**, between Fort Carré and the mouth of Rivière du Var, 5½ miles north-eastward, has a low beach of sand and gravel, which is steep-to and clear. From one to 1½ miles inland are Biot, Villeneuve, with a conspicuous high tower, Cagnes, and Saint Laurent  
10 villages. Rocher Gourdon, 8½ miles north-westward, and Rocher Saint Jeannet, 5½ miles northward of Cagnes, are remarkable cuts in the mountains. View at page 150, and on chart 2609.

The bay is but little frequented; with fresh winds from south to east the sea is very heavy, and landing on the beach becomes impos-  
15 sible when there is any swell from seaward.

**Cros de Cagnes**, on the north shore of Baie des Anges, 1½ miles westward of the mouth of the Var, is a small village chiefly of fishermen's houses; even in bad weather, the fishermen haul their boats on the beach, as the banks off the Var break the sea, so that it is much  
20 less on the beach here than elsewhere in the locality.

**Wireless telegraph.**—There is a wireless telegraph station at Cros de Cagnes; it is always open to the public. The call letters are F.F.G.

**Rivière du Var** rises in the Department of Basses Alpes, and  
25 flows south-eastward 78 miles; it is subject to heavy freshes in spring, but is an insignificant stream in summer. It is crossed at Saint Laurent by two bridges; the northern one is old and built of wood, and the southern carries the railway to Nice. The sands extend southward about three-quarters of a mile from the mouth, and about a  
30 quarter of a mile outside them the depth is 100 fathoms and upwards. The alluvial matter brought down by the river discolours the water for some distance seawards. View at page 150.

**Currents.**—The currents off the coast are variable, and set with the wind; off Cap d'Antibes and Cap Ferrat they set north-eastward  
35 with south-westerly winds and westward with easterly winds; they are scarcely felt over half a mile off-shore. Westward of Nice and off Rivière du Var they generally set westward; eastward of Nice they are little felt in the bays, but are sometimes strong at Cap d'Ail and Cap Martin.

40 **The coast** from the mouth of the Var (*Lat. 43° 39' N., Long. 7° 13' E.*) trends north-eastward 4 miles to Port de Nice; the 5-fathom line is half a mile off it near the river, but it then becomes fairly steep-to.

*General charts 2609, 1780, 2158a, 449.*

*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

**Nice approach.—Submarine vessels exercising.**—

When the flag, upper half red and lower half yellow, is hoisted at the signal stations, or by the vessel escorting submarine vessels, indicating that the latter are exercising submerged, vessels entering or leaving Port de Nice must use the fairway, in which submarine vessels do not exercise submerged, limited:—on the west, by the alignment of Mont Gros Observatory and Môle Extérieur lighthouse; on the east, by the alignment of Mont Gros Observatory and the cliffs on the eastern side of the port; and on the south, by a line drawn 270° true from Cap Ferrat.

**PORT de NICE** is situated between Mont du Château, 308 feet high, on the eastern side of the town, and Cap de Nice, about three-quarters of a mile south-eastward. View on chart 2,609.

The coast between the two points is clear at the distance of a cable, but Sèche de Nice, with 3 feet water, lies half a cable southward of Pointe Rouba Capeou, the south extreme of Mont du Château.

The gravel beach westward of Mont du Château is very steep. Near the mouth of Torrent du Paillon, marked by an arch, is the large Jetée Promenade.

The port is within Môle Extérieur, which extends 640 yards south-eastward from the south-eastern side of Mont du Château, and two inner moles extending from the north-eastern shore of the entrance. The eastern inner mole is about 200 yards long; its outer part is near La Petite Roche, a ledge of rocks, which has a red masonry beacon surmounted by a cone, 18 feet high, on it. The head of this mole is about 200 yards northward of the head of Môle Extérieur. The western inner mole (Môle Vieux) extends about 80 yards westward from the shore, about 1½ cables within the eastern mole.

Two small low moles in the Port Intérieur separate Bassin de Carenage from Bassin Nord; the entrance to Bassin de Carenage is 70 yards wide and to Bassin Nord 50 yards wide.

The quays in Port Intérieur are very broad; there are 4,090 feet of quayage, of which 1,870 feet have a depth of 21 feet alongside.

In Port Extérieur there are 704 feet of quayage on the eastern inner mole, and 328 feet on Môle Vieux, with 24 feet water alongside. Works are in progress for improving Port Extérieur, and a space about 5 acres in extent is being levelled for the storage of merchandise.

**Depths.**—The port will receive vessels of 20 feet draught. Port Extérieur is dredged to a depth of 23 feet, and Port Intérieur to a depth of 21 feet within about 40 feet from the quays.

**LIGHTS.**—A light is exhibited, at 74 feet above high water, from a white circular tower, 47 feet high (*Lat. 43° 42' N., Long. 7° 17' E.*), situated on Môle Extérieur at 250 yards from its outer end.

*General charts 2609, 1780, 2158a, 449.*

*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

A light is exhibited from an iron standard, 11 feet high, on the outer end of *Môle Extérieur*.

Lights are exhibited from pillars near the inner end of *Môle*  
5 *Extérieur*, and on the outer end of the western inner mole.

**Buoy.**—A white warping buoy is moored north-eastward of the lighthouse on *Môle Extérieur*.

**Pilotage** is voluntary. The charges for vessels of 800 tons and less are 40fr. on entry and 15fr. on departure; vessels over 800 tons  
10 are charged 7c. per ton in addition to the above charges to a maximum including entry and departure of 140fr.

Pilots board vessels off the entrance to the port.

**Directions.**—From the south-westward, approach with Fort Mont Alban bearing 35° true, and from the eastward give a berth of  
15 about one cable to Cap de Nice. Pass close eastward of the outer end of *Môle Extérieur*, and steer north-westward along that mole into the port.

Vessels entering the port are advised to obtain local assistance.

Vessels of war and yachts generally moor head to the southward,  
20 with stern hauled in to Quai Nord of Port Intérieur; steam merchant vessels are secured alongside the quays. Vessels are often inconvenienced at the entrance by a current caused by fresh water flowing out of the port; south-westerly winds cause a surf in the port when it is prudent to double the moorings.

Port de Nice (*Lat. 43° 42' N., Long. 7° 17' E.*) is not a port of  
25 refuge, and no attempt to obtain shelter there should be made with strong winds from between south-west and south-east, when Rade de Villefranche is available. When it rains in winter with south-westerly winds violent squalls render entrance dangerous.

**The town of Nice** is situated in a small plain at the foot of  
30 Alpes Maritimes, by which it is sheltered from northerly and easterly winds. It is encircled by bastioned walls, and on the east are Mont du Château, and Mont Alban, a steep rocky hill, surmounted by a fort. The town is divided into two parts by Torrent du Paillon, the lower  
35 part of which, between Place Masséna and the sea, has been covered in and made into a square. The streets of the old town, on the left bank, are narrow and crooked, but clean. The new town, westward of the river, is well laid out and handsome; some of the houses near the sea are very fine. The cathedral, several convents, hospitals, the  
40 governor's house, college, library, and theatre are the principal public buildings.

There is a sailor's home, open to English-speaking seamen, and the Protestant hospital, also for the use of seamen, as well as for British subjects generally.

*General charts 2609, 1780, 2158a, 449.*

*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

The population was 142,940 in 1911.

A British Consul is stationed at Nice.

**Weather.**—The sea breeze, which blows daily with a regularity almost equal to that of a tropical climate, moderates the summer heat. The principal disadvantage of the position of Nice is that, being open westward, there is but little protection from the mistral; the north-east wind is also often keen and piercing. 5

**Trade.**—There are manufactures of silk twist, snuff, soap, essences, candid fruits, syrups, marqueterie, perfumery, and paper, also an extensive cultivation in flowers. In 1913, the principal articles of import were coal, cereals, olive oil, and wine, of the value of £984,496, and of export, coal and olive oil, of the value of £112,440. 10

**Shipping.**—In 1913, 955 steam vessels, of 545,732 tons, and 554 sailing vessels, of 27,219 tons, entered the port. 15

**Supplies.**—Provisions and supplies can be obtained. Water of fair quality can be procured from the quays, where there are stand pipes; there are two tank vessels, one of 14 and the other of 40 tons.

**Coal.**—About 90,000 tons of coal are imported annually; at least 500 tons are kept in stock. 20

**Cranes.**—There are six cranes; one fixed of 30 tons, one fixed of 10 tons, and four travelling of 3 tons.

**Communication.**—The Paris, Lyons, and Mediterranean railway continues through Nice to Ventimiglia; there is also a railway to Digne, about 93 English statute miles to the north-westward. Steam vessels run frequently to Marseille, Leghorn, Corsica, and Genoa. There is telephonic communication between Nice and Paris. 25

**Life-saving station.**—A rocket apparatus is stationed at Nice Custom house.

**Cap de Nice**, the south-west extreme of Mont Boron, is high and steep, and on it are Tour de l'Anglais and Château Smyth, two strange-looking buildings. Mont Boron,  $3\frac{1}{2}$  cables north-eastward of the cape, is 600 feet high, and the southern summit of the peninsula which separates Nice from Villefranche. Mont Alban, the northern summit, 7 cables northward of Mont Boron, is 722 feet high and surmounted by a fort. View on chart 2609. 30 35

**The coast** from Cap de Nice (*Lat. 43° 41' N., Long. 7° 18' E.*) trends eastward 4 cables to Pointe des Sans Culottes, the south-eastern extreme of Mont Boron, and is high and steep.

**VILLEFRANCHE.**—The entrance to Baie de Villefranche, between Pointe des Sans Culottes and Cap Ferrat, a narrow wooded promontory which projects southward nearly 2 miles, is half a mile 40

*General charts 2609, 1780, 2158a, 449.*

*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

wide. The south end of Cap Ferrat promontory is cliffy, rising about half a mile northward of Pointe Malalougue, its southern extreme, to Mont Cauferat, a ridge 482 feet high. The bay extends northward  
 5 1½ miles, widening to about 8 cables half a mile within the entrance, and narrowing to about 3 cables near the head, with depths of from 45 to 70 fathoms, in the entrance, to 8 fathoms in the northern part of the bay.

The west shore is cliffy from Pointe des Sans Culottes northward to  
 10 the lazaretto, a distance of half a mile, where there is a small pier; 4 cables northward of it is the arsenal, with a mole projecting 1½ cables north-eastward, on the north-western side of which is a basin 656 feet long and 394 feet wide; the entrance is 105 feet wide, with a depth of 18 feet; a mole, extending south-eastward about 130 feet from the  
 15 shore, divides the basin into two parts, but there is only room in the inner part for one vessel of moderate size alongside the mole, where there are depths of from 19 to 23 feet at a distance of 33 feet; the basin is reserved for French Government vessels. The citadel, a large work, stands on the shore a short distance northward of the  
 20 mole; the town, on its northern side, is built in the form of an amphitheatre, and contained 4,425 inhabitants in 1906. At the head of the bay is the railway tunnel and station, and between the citadel and town the Health office mole, with La Tourelle, a large octagonal tower, built on a projecting rocky point. The shore is clear, there  
 25 being a depth of 5 fathoms at the distance of half a cable.

The east shore from Pointe Malalougue to Pointe Pilone, about one mile to the northward, is bold and cliffy, but Le Roche Voet extends half a cable off-shore, nearly 2 cables northward from Pointe Malalougue, and is marked by a red iron beacon, surmounted by a cone,  
 30 14 feet high. Shallow water extends about 1½ cables off-shore, and nearly fills up Baie de l'Espalmador, which lies between Pointe Pilone and Pointe du Rube (*Lat. 43° 42' N., Long. 7° 19' E.*), half a mile to the northward.

**Roches du Rube** extend 1½ cables south-westward from Pointe  
 35 du Rube; there is a least depth of one fathom on these rocks three-quarters of a cable from the point.

**LIGHTS.**—A light is exhibited, at 229 feet above high water, from a white octagonal tower, 119 feet high, on Pointe Malalougue, the south-west extreme of Cap Ferrat.

40 Lights are exhibited from a platform at the end of the Arsenal mole, and from an iron column at the end of the Health office mole.

**Signal station.**—There is a semaphore, 30 feet high, on Cap Ferrat peninsula, 4½ cables northward of the lighthouse.

*General charts 2609, 1780, 2158a, 449.*

*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

**Buoys.**—The south-western side of Roches du Rube is marked by two conical buoys; the southern one red and black and surmounted by a ball, and the northern one red and surmounted by a cone.

**Rade de Villefranche** extends along the western shore of the bay, and affords anchorage for vessels of all sizes. Southerly winds send a swell into the head of the bay, which causes vessels to roll heavily, but does not strain the cables as it, as well as the wind, is deflected back by the lapd. 5

The best anchorage is off the town, or with the citadel (*Lat. 43° 42' N., Long. 7° 19' E.*) and Fort Mont Alban in line; it is not considered safe to lie at single anchor, as very strong gusts of wind often blow down the gullies from the north-east; but in fine weather vessels sometimes anchor in about 8 fathoms with a hawser to the shore. It is unadvisable to anchor southward of a line from Villa Biancheri through the end of Arsenal mole. 15

There is anchorage with easterly winds in the entrance to Baie de l'Espalmador, with Villefranche belfry in line with La Tourelle and La Garoupe lighthouse open southward of Pointe des Sans Culottes, in 6 to 8 fathoms, but it must be quitted on south-westerly winds setting in; it is seldom used. 20

**Mooring buoys.**—Eléven sets of moorings are laid down in the bay for the use of vessels of the French navy. There are also three moorings buoys near the north-eastern shore of the head of the bay, and two mooring buoys in Baie de l'Espalmador. 25

The mooring buoys are small wooden casks, and owing to the confined nature of the harbour, care is necessary in a fresh breeze to keep the vessel in position while taking in the small chain before coming to the large moorings.

**Landing.**—There is landing for boats at the Health office mole, and also landing in Anse de Passable, the south-east corner of Baie de l'Espalmador. 30

**Winds.**—During strong easterly or westerly winds, heavy squalls blow down through the breaks in the land around the bay.

Easterly winds prevail during winter, sometimes blowing hard and accompanied by rain and mist. 35

**Supplies** can be procured by rail from Nice. Water can be procured at the town.

**Repairs.**—Small repairs can be effected.

**Dock.**—See Appendix I. 40

**Life-saving station.**—There is a station for affording aid in case of shipwreck at Villefranche Custom house.

*General charts 2609, 1780, 2158a, 449.*



*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

**Pointe Causinière** (de la Tache rousse) is 2 cables eastward of Pointe Malalongue, the coast between being moderately high and steep.

- 5 **Presqu'île de Saint Hospice** projects about  $6\frac{1}{2}$  cables eastward from Cap Ferrat promontory, three-quarters of a mile northward of Pointe Causinière. At the western end of its southern side are Anse de Lilong and Anse des Fosses, separated by a narrow projection  $1\frac{1}{2}$  cables long, terminating in Pointe de Lilong; both are open  
10 to the southward, and are not used for anchorage. A spit, with about 2 fathoms water, extends nearly a cable southward from Pointe du Colombier, the eastern entrance point of Anse des Fosses.

- Pointe de Saint Hospice** (*Lat. 43° 41' N., Long. 7° 21' E.*), the eastern extreme of the peninsula, is low; about  $1\frac{1}{2}$  cables westward of the point are a tower and chapel.

- Baie de Saint Hospice.**—The coast trends westward about three-quarters of a mile from Pointe de Saint Hospice, then northward  $1\frac{3}{8}$  miles, and east-north-eastward 7 cables to Cap Roux, and comprises Baie de Saint Hospice, in the south, and Rade de Beaulieu in  
20 the north; both are open to the south-eastward, and afford good shelter for vessels of all sizes during westerly winds, in from 8 to 14 fathoms, sand and weeds, about half a mile off-shore.

- Anchorage.**—Small vessels anchor in from 2 to 3 fathoms in Anse de la Scaletta, the first bay westward of Pointe de Saint Hospice;  
25 it is open to the northward.

**Port de Saint Jean**, in the south-west corner of Baie de Saint Hospice, is within two short moles, sheltering a space 328 feet long and 460 feet wide; the entrance is 124 feet wide, and the port is available for vessels of 12 feet and less draught.

- 30 **Light.**—A light is exhibited from a white iron hut and iron standard, 28 feet high, on the east mole head of Port de Saint Jean.

**Life-saving station.**—There is a rocket apparatus at St. Hospice Custom house.

- Anse des Fourmis**, nearly a mile northward of Port Saint  
35 Jean, is shallow and only suitable for boats. Beaulieu, on the north shore of the bay, is a popular winter resort. There is a fort on Pointe de Beaulieu, a quarter of a mile north-eastward of Pointe des Fourmis, the eastern point of the bay.

- Port de Beaulieu**, close westward of Pointe de Beaulieu, is  
40 within two moles; there are depths of from  $1\frac{1}{4}$  to  $1\frac{1}{2}$  fathoms in the port.

Two mooring buoys for yachts lie  $2\frac{1}{2}$  and  $3\frac{3}{4}$  cables, respectively, eastward of Beaulieu belfry.

*General charts 3220, 2609, 1780, 2158a, 449.*

*Plan 153, Villefranche bay, &c. Var. 10° 20' W.*

**Sèche de Beaulieu**, a quarter of a mile east-north-eastward of Pointe de Beaulieu, is a rocky shoal with  $2\frac{1}{2}$  fathoms water.

Shoal water extends from one to 2 cables off the coast north-eastward of Pointe de Beaulieu. 5

**La Galiote**, a rock with  $2\frac{1}{4}$  fathoms water, lies half a cable southward of Cap Roux (*Lat. 43° 43' N., Long. 7° 21' E.*).

*Plan 3220, Cape Ferrat to Bordighera.*

**The coast** in the vicinity of Cap Roux is high, and it continues high eastward to Cap d'Ail, a distance of  $2\frac{1}{2}$  miles, Baie d'Eze between Cap Roux and Pointe de Cabuel (Cabeel), one mile eastward, and Baie de Saint Laurent, eastward of that point, are only frequented by fishing boats. 10

**Cap d'Ail** (d'Aggio) is a small peninsula of moderate height, on which is a battery in ruins; a spit with from 2 to  $4\frac{3}{4}$  fathoms water extends nearly 2 cables southward from the cape. Fort Mont Alban open southward of Pointe de Beaulieu leads southward of the spit; as the current generally sets towards the land, and there is sometimes a very heavy swell, give this cape and the points to the westward a good berth. Tête de Chien, about three-quarters of a mile northward of the cape, is a rocky crag, 1,880 feet high. 15 20

**Life-saving station.**—A rocket apparatus is stationed at Cap d'Ail Custom house.

**Baie de Rocco** lies between Cap d'Ail and Presqu'île de Monaco, about one mile north-eastward; it does not afford anchorage. 25

*Plan, Port Monaco, on 3220.*

**PRESQU'ÎLE DE MONACO** is a steep rocky eminence, 197 feet high, projecting about half a mile eastward, on which the town is built, and the palace, fortifications, and public buildings are good marks, especially when the summits of the mountains in the vicinity are obscured by fog. The south and east coasts are clear and steep-to. 30

The ruined tower of La Turbie, 1,843 feet above high water, is about a mile north-westward of the port; Mont Agel (Table de Monaco), 3,770 feet high, with a flat summit, 2 miles northward of the port, and Mont Baudon (Aiguille de Menton), a peak, 4,157 feet high, which shows two peaks from the south-south-westward, 3 miles further northward. Further inland are the high chains of the Alpes, including Mont Viso, 12,613 feet high, about 56 miles northward of Monaco; the summits of these mountains are covered with snow. View on chart 2609. 35 40

*General charts 3220, 2609, 1780, 2158a, 449.*

*Plan, Port Monaco, on 3220. Var. 10° 20' W.*

**Port.**—The port lies between Presqu'île de Monaco, on the south, and the coast of Monte Carlo, on the north, with the beach of La Condamine to the westward.

- 5 A mole extends 558 feet northward from Pointe Antoine (*Lat. 43° 44' N., Long. 7° 26' E.*), the eastern extreme of Presqu'île de Monaco, and a similar mole extends the same distance southward and towards it from the north shore, leaving an entrance 360 feet wide. The port has an area of about 42 acres, and in the entrance there is a  
10 depth of 16 fathoms, which decreases to 5 fathoms about 250 yards within, and thence gradually to the shore.

- Quai de Monaco, on the southern side of the port, is broad and 1,330 feet long, with depths of about 4 fathoms alongside, except near its ends; it is to be connected with the Paris, Lyons, and Mediter-  
15 ranean railway.

The port is available for vessels of all sizes, provided their anchors will hold; it is sheltered from winds between north and south, through west, but fresh easterly winds cause a sea which renders the port scarcely practicable.

- 20 There are nine heavy moorings in the port for steam yachts, which also secure to the southern mole.

**Lights.**—A light is exhibited at 49 feet above high water, from an octagonal masonry tower, on the northern end of the south mole, and also form a similar tower on the southern end of the north mole.

- 25 A light is exhibited from Quai de Monaco.

- Pilots.**—The pilotage and mooring of vessels are assured by the service of the Direction du Port. The employment of a pilot is optional. The charges are: Steam vessels, arrival, 0fr. 4c. per ton, maximum 80fr.; departure, 0fr. 2c. per ton, maximum 40fr.; sailing  
30 vessels, arrival 30fr., departure 8fr.

- Towns.**—The old town of Monaco, situated on the rocky peninsula, contains the palace and a cathedral, both conspicuous. La Condamine, or new town, is on the lower ground at the head of the port. Monte Carlo, on the north side of the port, has a Casino with gardens  
35 and extensive terraces, the Tir aux Pigeons, and several fine hotels. The population of the towns was 22,956 by a census taken in January, 1913.

A British Vice-Consul is stationed here.

- Trade.**—The principal articles imported into Monaco in 1913  
40 were coal, cereals, and wine, of the value of £179,933; the principal article of export was beer, of the value of £4,937.

**Shipping.**—In 1913, 207 steam vessels, of 208,691 tons, and  
65 sailing vessels, of 5,358 tons, entered the Port of Monaco.

*General charts 3220, 2609, 1780, 2158a, 449.*

*Plan, Port Monaco, on 3220. Var. 10° 20' W.*

**Supplies.**—Provisions and supplies can be obtained. Good water is supplied by hose at the quay.

**Coal.**—A supply of coal cannot be depended on; coal is ordered from Nice when required. A little might be obtained from the gas-works, or from the merchants in the town. 5

**Communication.**—Monaco is on the Paris, Lyons, and Mediterranean railway.

*Plan 3220, Cape Ferrat to Bordighera.*

**The coast** from Pointe Focinana, about a cable east-north-eastward from the northern mole of Port de Monaco, trends north-eastward nearly a mile to Pointe de la Vieille, and the 5-fathom line is nearly 2 cables off-shore within about 6 cables from the latter point. 10

**Baie de Roquebrune.**—The shore from Pointe de la Vieille (*Lat. 43° 45' N., Long. 7° 26' E.*) trends north-eastward three-quarters of a mile and then turns eastward and south-eastward 1½ miles to Cap Martin, forming Baie de Roquebrune. About 3 cables northward from the head of the bay is Roquebrune village, close southward of which is a crag in the shape of a tower, 774 feet high. The 5-fathom line is about 2 cables off the north shore of the bay, and inside it are some shoal rocky patches. Temporary anchorage can be obtained in the bay northward of a line between Pointe de la Vieille and Cap Martin, southward of which the bottom is rocky; the anchorage should only be used in fine weather. A good position is in from 8 to 11 fathoms, sand and weeds, with Cap Martin semaphore bearing from 90° to 100° true, and the crag in the shape of a tower near Roquebrune village in line with a small house on the beach at the head of the bay. 20 25

**Cap Martin** is a low point rising gradually to a height of 272 feet; it is covered with olive and pine woods; the cape is steep to at the distance of half a cable. On a slight rise near the cape is Hôtel du Cap, a large building. 30

**Signal station.**—There is a semaphore (tower) about 3 cables north-westward of the cape.

**The coast** from Cap Martin trends north-westward half a mile, and is steep; it then turns north-eastward 1½ miles to Mentone, and is a sandy beach bordered to distances of from one to 2 cables by shoal water. There is anchorage in 6 to 7 fathoms, sand, mud, and weeds, north-eastward of Cap Martin semaphore, and 3 cables eastward of a small white chapel. It is dangerous in winter, and vessels should always leave on any signs of winds from seaward, when shelter can be obtained at Villefranche. 40

*General charts 3220, 2609, 1780, 2158a, 449.*

*Plan 3220, Cape Ferrat to Bordighera. Var. 10° 20' W.*

**PORT de MENTONE** (Menton), eastward of a small projecting rocky promontory (*Lat. 43° 47' N., Long. 7° 30' E.*), and northward of a mole about 2 cables in length extending east-north-eastward from it, is small, with a bottom encumbered by rocks, and is available for vessels of 18 feet and less draught. In fine weather, anchor in the port and haul the stern in to the mole, but with easterly winds haul the stern to two ring bolts on two rocks awash at the head of the port, to keep the vessel's head to the eastward; the holding ground is good, and the cable will part before the anchor drags.

**Light.**—A light is exhibited, at 53 feet above high water, from a white metal tower, with grey projections, 34 feet high, on the outer end of the mole.

**Buoy.**—A white warping buoy is moored in  $3\frac{1}{2}$  fathoms water, about three-quarters of a cable north-westward of the molehead.

**Anchorage.**—In fine weather vessels anchor in from 6 to 8 fathoms, sand and weed, one to 2 cables eastward of the molehead. Large vessels anchor further seaward in from 14 to 17 fathoms, in order to be in a favourable position should south-easterly winds set in. Avoid anchoring on Roche Castellar, with 10 fathoms water, situated 3 cables south-eastward of the molehead.

During strong north-west winds heavy squalls come down through the breaks in the mountains.

**The town** is situated on the coast both westward and eastward of the promontory, on which the old part is built. Torrent de Boirigo and Torrent de Carei, two little streams, flow into the sea, about  $6\frac{1}{2}$  and 5 cables, respectively, westward of the port. It formerly belonged to the principality of Monaco, was attached to Sardinia in 1852, and ceded to France in 1860; it is much frequented by visitors and invalids during winter. The population was 18,000 in 1911.

A British Vice-Consul is stationed here.

**Trade.**—In 1913, the principal article of import into Mentone was coal, value £9,343; the principal articles of export were olive oil and lemons, value £295.

**Shipping.**—In 1913, 29 steam vessels, of 8,068 tons, and 19 sailing vessels, of 1,176 tons, entered and cleared the Port of Mentone.

**Supplies** are plentiful, and good water can be procured free from a hose on the quay.

**Coal.**—About 3,000 tons of coal are imported annually, and about 200 tons are kept in stock by one firm. There is a coal wharf 300 feet long with a depth of 21 feet alongside.

*General charts 2609, 1780, 2158a, 449.*

*Plan 3220, Cape Ferrat to Bordighera. Var. 10° 20' W.*

**Life-saving station.**—A rocket apparatus is stationed at Mentone Custom house.

**Communication.**—Mentone is on the Paris, Lyons, and Mediterranean railway, which runs along the coast. 5

**The coast** from Port de Mentone trends eastward about one mile to the little Rivière Saint Louis (Fiume San Luigi) (*Lat. 43° 47' N., Long. 7° 32' E.*), and the 5-fathom line is from 2 to 3 cables off it. On the coast close eastward of the mouth of the river is an iron triangular mark, of white horizontal laths with open spaces between, point upwards, on a masonry pillar, and about a cable to the northward is a white triangular mark, point downwards, painted on a rock northward of San Luigi bridge. 10

**The coast** is continued eastward on page 240.

*General charts 2609, 1780, 2158a, 449.*

## CHAPTER III.

### ISLAND OF CORSICA.

*Lat. 43° 2' N. to Lat. 41° 16' N., Long. 8° 33' E. to Long. 9° 34' E.*

VARIATION IN 1917.—Decreasing about seven minutes annually.

#### WEST AND NORTH COASTS.

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

- POINTE AQUILA** (*Lat. 41° 33' N., Long. 8° 47' E.*), the south-western extreme of Corsica, is a low peninsula projecting about a cable from the coast line and surrounded by rocks, one of which, with one foot water, lies 2 cables westward of the point.

**LIGHT.**—A light is exhibited, at 164 feet above high water, from the northern of two white towers, 48 feet high, and 50 feet apart, connected by a white building, situated on the slope of the hill, about 4 cables east-north-eastward of Pointe Aquila.

- The coast** between Pointe Aquila and Pointe de Sénétose, 7 cables to the northward, is bordered by a line of shoals and rocks to the distance of 2 cables. The land within Pointe de Sénétose rises, at half a mile to the eastward, to a hill 423 feet high, on which is a white tower.

- Pointe de Sénétose is a small peninsula with a group of rocks and islets to the northward of it. Scoglio Bianco (White rock) is the outer islet; a rock which dries  $1\frac{1}{2}$  feet lies 2 cables south-westward from it, and a rock with 2 fathoms water lies one cable westward from its north-west extreme. The coast should be given a berth of not less than half a mile.

**Clearing mark.**—Tour Nero open westward of Île d'Eccica leads westward of the shoals between Pointes Aquila and de Sénétose.

- Calanque de Conca**, three-quarters of a mile north-eastward of Pointe de Sénétose, extends north-eastward about 3 cables, and terminates in a beach. Between Calanque de Conca and Île d'Eccica, about  $1\frac{1}{2}$  miles north-westward, are Anse d'Arana and Anse de Ferro, both small. All these coves are suitable only for small vessels with off-shore winds. A rock with 2 fathoms water, and 15 to 22 fathoms around, is situated about 4 cables off the southern entrance point of

*General charts 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

Anse d'Arana; the north entrance point is rocky, and rocks above water, terminating in a rock with one foot water, extend 2 cables south-westward from it. The shore between Calanque de Conca and Pointe d'Eccica is bordered by rocks to the distance of about  $1\frac{1}{2}$  cables. 5

**Pointe d'Eccica**,  $1\frac{1}{2}$  miles north-north-westward of Pointe de Sénétose, projects westward about 3 cables, and is bordered by rocks; Ile d'Eccica, small, low, and bare, lies 4 cables westward of the point, the channel between being obstructed by rocks; a rock with  $2\frac{1}{2}$  fathoms water lies  $1\frac{1}{4}$  cables northward of the eastern point of the islet. 10

**The coast.**—Anse d'Agulia, about half a mile north-eastward of Pointe d'Eccica, is very narrow, and only available for small fishing craft; the coast then trends northward  $1\frac{1}{4}$  miles to Pointe Manna Molina, and is steep, rocky, and bordered by detached rocks and shoals. Pointe Manna Molina is large blocks of white rocks, and there is some cultivation to the northward of it. Pointe dello Scalono, three-quarters of a mile north-north-eastward of Pointe Manna Molina, has a vertical rock on it, which is like a tower. About one mile north-eastward of Pointe dello Scalono is Pointe de Campo Moro (*Lat. 41° 38' N., Long. 8° 49' E.*), the coast between being high, rugged, and foul, with rocks extending  $2\frac{1}{2}$  cables from it in places. 15 20

*Plan, Campo Moro anchorage, on 1126.*

**Pointe de Campo Moro** is the northern extreme of a peninsula, nearly 4 cables broad, projecting about half a mile northward; it rises, about 2 cables within, to a high hill, on which is a fort, with a round tower of great diameter in the middle. On the western side of the peninsula are many islets and rocks, and some white rocks extend over a quarter of a mile north-north-eastward from it. The sea is very heavy in the vicinity of the point during westerly winds. 25

*Chart 429, Cape Feno to Lava bay.* 30

**GOLFE de VALINCO.**—Pointe de Porto Pollo lies  $3\frac{3}{4}$  miles northward of Pointe de Campo Moro, and between them Golfe de Valinco extends  $5\frac{3}{4}$  miles eastward. The gulf is surrounded by mountains; about 10 miles south-eastward is Mont Ovace, 4,396 feet high, the summit of the Cagna range; 2 miles eastward are the two conical peaks of Mont Savaziglia, 2,195 feet high, with Viggianello (Viggianello) village half a mile westward; and 2 miles northward of the head of the bay is Mont Buturetto, 2,854 feet high, with Olmeto village on its south-eastern slope. 35

*Plan, Campo Moro anchorage, on 1126.* 40

**Baie de Campo Moro**, on the east side of the point of the same name, extends about half a mile southward from its entrance,

*General charts 429, 1131, 1780, 2158a, 449.*



*Plan, Campo Moro anchorage, on 1126. Var. 9° 40' W.*

which is 8 cables wide. Campo Moro village is on the shore at its head, where there is a sandy beach, and a large modern castle, with three turrets, within it. There is a good road to Propriano.

- 5 **Anchorage.**—There is anchorage in the bay, about  $1\frac{1}{2}$  cables off the west shore, and 2 or 3 cables from the beach, bottom weeds, but the shore is very steep and the depths decrease suddenly. The holding ground is good, and the anchorage is sheltered from south-west to west winds; with north-westerly winds the sea is heavy.

- 10 **Supplies.**—A small quantity of fresh water can be procured, but at some distance from the beach; no provisions can be obtained.

*Chart 429, Cape Feno to Lava bay.*

- The coast** from the eastern point of Baie de Campo Moro trends east-north-eastward a little more than one mile to Pointe Cardicciani, 15 half a mile westward from which, and 3 cables off-shore, is a white round islet; the coast between the islet and Pointe Cardicciani is skirted with rocks.

- Portigliolo.**—About half a mile eastward of Pointe Cardicciani is Pointe Portigliolo (*Lat. 41° 39' N., Long. 8° 52' E.*), off which 20 shoals, on which the sea breaks, extend about 2 cables. The little village Portigliolo, is about 3 cables further eastward, at the mouth of Rivière Rizzanèze, and there is a rock 2 cables off it.

- The sandy beach of the Rizzanèze from the entrance to the river trends north-north-eastward about  $1\frac{1}{2}$  miles to Cap Lauroso, and 25 within it is the cultivated plain of Tavarìa. A group of rocks lies 3 cables off the beach nearly a mile northward of Portigliolo village.

- Cap Lauroso** is of little height, and is surrounded by breakers; thence the coast turns eastward to the beach at the head of the gulf, and is nearly all beach, interrupted by cliffs and two or three islets 30 or rocks.

- Port de Propriano**, nearly a mile east-north-eastward of Cap Lauroso, is sheltered by Jetée Ouest, a mole, which extends northward about 380 yards from the shore to Rochers de Scoglio Longo, whence Jetée Nord extends east-north-eastward about 200 yards. There is 35 a quay on Jetée Ouest, with 20 feet water alongside. On the south shore of the port is a stone landing-pier, leading to a small quay, within which are the Customs, port, police, and post offices.

- The port is not sheltered from westerly to northerly winds, and the sea during strong north-westerly winds breaks over the jetties, and 40 there is a heavy swell in the port. Easterly winds are accompanied by heavy squalls.

Vessels anchor south-eastward of Jetée Nord and off the landing pier in  $5\frac{1}{2}$  fathoms, sandy mud.

*General charts 429, 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

**LIGHTS.**—A light is exhibited, at 55 feet above high water, from a white cylindrical masonry tower, 53 feet high, on the north end of Jetée Ouest.

A light is exhibited from a metal column, 19 feet high, on the east end of Jetée Nord. 5

**Buoys.**—A white mooring buoy lies about 70 yards north-eastward of the landing pier, for the temporary use of vessels which do not wish to anchor.

A red buoy lies eastward of the white buoy, on the edge of the shore bank in  $2\frac{1}{2}$  fathoms. 10

**Pilotage.**—There is a pilot station at Port de Propriano, within a line from Portigliolo to Pointe de Taravo.

**The village** of Propriano (*Lat. 41° 40' N., Long. 8° 54' E.*) is small, and the houses are along the road from Sartène to Ajaccio. 15 The church, with a white square belfry, is isolated on a hill behind the houses; eastward of the village is the cemetery where there are several remarkable chapels. The population of the village is about 900.

Propriano is the port of Sartène and Tallano, and considerable quantities of building wood and wine are shipped here. 20

**Supplies.**—Provisions can be procured at the village, and water from a fountain near the quay.

**Life-saving station.**—A rocket apparatus is stationed at Propriano Custom house. 25

**Communication.**—The motor-car, which runs daily between Bonifacio and Ajaccio, passes through Propriano. A steam vessel runs three times a week to Ajaccio in fine weather.

**The gulf** extends eastward about one mile from between Propriano Jetée Ouest and Pointe d'Aglio to its head, with a width of about three-quarters of a mile. The depth at the entrance is about 30 19 fathoms, whence it diminishes gradually to the beach at the head, into which the small Rivière Boracci flows; the bottom is principally mud.

The north shore of the gulf from the mouth of Rivière Boracci trends westward  $1\frac{1}{4}$  miles to Pointe d'Aglio, and is rocky. Pointe d'Aglio is low, and has a tower on it; two-thirds of a mile north-westward is a higher and steep point, with a beach between; then it continues westward 2 miles to Pointe de Taravo; all this shore is clear at the distance of  $1\frac{1}{2}$  cables. 40

**Pointe de Taravo** is low, and bordered by breakers; it should always be given a good berth, as alluvium is brought down by the river. Tour de Bajaccia is on a hill, 193 feet high, about half

*General charts 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

a mile northward of the point, and westward of the tower is a beach, a mile in length, the termination of the well-cultivated Taravo plain.

- 5 Rivièrè de Taravo, one of the most important rivers of Corsica, flows into the sea by two mouths, one at each end of the beach.

*Plan, Porto Pollo anchorage, on 1126.*

- Porto Pollo**, between the western mouth of Rivièrè de Taravo and the south-eastern point of Presqu'île de Porto Pollo, is a bay  
10 about three-quarters of a mile wide, with a small beach, which affords anchorage, sheltered from north-westerly winds, in from 11 to 15 fathoms, weeds, eastward of a tower in ruins.

- A road runs from Porto Pollo to the mouth of Le Fium Orbo, on the east coast, near Ghisonaccia, the terminus of the railway to  
15 Bastia.

**Life-saving station.**—A rocket apparatus is stationed at Porto Pollo Custom house.

- Presqu'île de Porto Pollo**, the north entrance point of Golfe de Valinco, extends south-westward about three-quarters of a mile from  
20 the coast line, and is rugged, and surrounded by rocks; on its summit, 182 feet high, 6 cables from Pointe de Porto Pollo (*Lat. 41° 42' N., Long. 8° 47' E.*), the south-western extreme, are the ruins of a tower. The south coast is nearly half a mile long east and west, with a ridge of rocks extending 4 cables south-south-eastward from its eastern  
25 extremity, the outer rock being 9 feet high, which partly shelters Porto Pollo from the south-westward, and a group of rocks extends 1½ cables off Pointe de Porto Pollo; there is also a rock with 4 fathoms water 3 cables south-westward from this point.

- The bay** between Pointe de Porto Pollo and Pointe de Pratarella,  
30 about one mile north-westward, extends about a half a mile north-eastward, but the middle is occupied by a large ledge of rocks, and it affords neither anchorage nor shelter.

Pointe de Pratarella is bordered by foul ground, and should not be closed to less than 4 cables.

- 35 *Chart 429, Capo Feno to Lava bay.*

- Baie de Cupabia** extends about 2 miles east-north-eastward between Pointe de Pratarella and Cap Nero, 3 miles to the westward. The shore from Pointe de Pratarella trends northward half a mile to a point surrounded by rocks, northward of which is a small bay, and  
40 about 2 cables within its head is Tour de Capanelle, reddish in colour, but not very conspicuous.

There is anchorage for small vessels, with winds from south-east,

*General charts 429, 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

through north, to north-west, in about 8 fathoms water, sand and weeds, in a small bay north-westward of the tower.

Northward of this bay the shore is encumbered with rocks as far as the beach of Cupabia, where there is a house; the shore then turns gradually north-westward and west-south-westward to Cap Nero; rocks extend about  $1\frac{1}{2}$  cables off it in places. 5

**Cap Nero** is high, and above its blackish cliffs is a round tower, which, from its light colour, is conspicuous against the surrounding trees. A rocky spit, on which is a small detached rock above water, extends about  $2\frac{1}{2}$  cables south-westward from the cape. 10

The cliffs of Nero trend northward about one mile from the cape, gradually becoming lower, to Anse d'Orzo, where there is a small beach; the coast of Presqu'île de Muro then turns westward and rises very steeply. Rocks, some above water, extend about a quarter of a mile off it in places. 15

**Cap Muro** (*Lat. 41° 45' N., Long. 8° 40' E.*),  $2\frac{1}{2}$  miles west-north-westward from Cap Nero, is the southern point of the western end of Presqu'île de Muro, and on top of its cliffs is the small stone Chapelle de la Madone; a rocky shoal awash lies a cable off the cape. A rocky bank with 6 fathoms water lies one mile southward from the cape. 20

**Pointe Guardiola** is about 7 cables northward of Cap Muro, and the coast between is foul with rocks and shoal water extending 3 cables off it. La Botte, a rock above water, lies about a cable westward of Pointe Guardiola at the western end of a rocky ridge; about a cable westward of La Botte is a rock with one foot water. Sommet Guardiola, half a mile eastward of the point, is 548 feet high, and the highest part of Presqu'île de Muro, and northward of it, on the coast, is a pyramid; on top of the cliffs to the eastward is Tour Muro and a small house with green shutters; south-eastward of the summit, on a hill 525 feet high, is a masonry surveying pyramid. 30

**Caution.**—The points on the north-eastern side of Golfe de Valinco, as well as Cap Muro and Pointe Guardiola, should be given a wide berth when there is a strong westerly wind, as the sea then becomes very heavy, and it breaks off Pointe Guardiola. 35

**GOLFE d' AJACCIO** extends about 10 miles north-eastward between Cap Muro and Les Sanguinaires,  $8\frac{1}{2}$  miles north-north-westward. On its eastern shore are several bays separated by projecting points, with off-lying rocks and shoals, none of which extend more than three-quarters of a mile from the shore; the north shore is less irregular, but there are also some rocky shoals off it. The head of the gulf terminates in a sandy beach, and near it on the north shore is Ajaccio 40

*General charts 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

town. The water in the gulf is very deep, there being 150 fathoms a mile off the beach at its head. Westerly, and particularly south-westerly, winds are very strong and cause a heavy sea in nearly every  
5 part.

**Port de Cacao**, eastward of Sommet Guardiola (*Lat. 41° 45' N., Long. 8° 40' E.*) is protected by a rocky point; it is small, and affords precarious shelter to coasting vessels from southerly and south-westerly winds, as they almost invariably veer to the north-westward, when the  
10 sea becomes very heavy. The shore is skirted to a short distance with rocks.

**The shore** between Port de Cacao and Pointe Castagna, 3 miles north-north-eastward, forms a bay but little frequented; it is bordered by rocks, which extend 2 cables off in places. A rocky plateau  
15 extends north-westward from a point one mile eastward of the port, and there is a depth of  $5\frac{1}{2}$  fathoms at the distance of one mile, on which the sea breaks with westerly winds; there is a house with a red roof within the point.

Mont Carapono, 2,051 feet high, lies about  $3\frac{1}{2}$  miles east-north-eastward of the point just mentioned, and Coti village, with a large penitentiary, is on a hill, at the base of the summit.

**Presqu'île de Castagna**, which projects nearly  $1\frac{1}{2}$  miles north-westward from the coastline, is clifty, and there is a tower on it; Pointe Castagna is the south-western point of the peninsula, and there  
25 are shoals within about  $3\frac{1}{2}$  cables from it; the north-eastern point is clear at the distance of a cable.

**Anse de Portigliolo**, a mile eastward of Pointe Castagna, though small, affords shelter to a few coasting vessels from all winds, by anchoring near the beach, which is steep-to, in  $2\frac{1}{2}$  fathoms; larger  
30 vessels anchor further out and must leave on north-westerly winds setting in. A rocky shoal, with  $2\frac{1}{4}$  fathoms water, lies about 3 cables north-westward of the western entrance point.

Ile Piana, about three-quarters of a mile northward of the anse and close to the shore, is very low and surrounded with rocks. About half  
35 a mile eastward of the islet is a point off which rocky spits and shoals extend 3 cables. Eastward of this point is Port Chiavari with a sandy beach through which a river flows into the sea. The anchorage in Port Chiavari is very bad, and the sea is very heavy with north-westerly and westerly winds. There is a small point with some detached rocks  
40 off it eastward of the port, and then follows a beach a quarter of a mile long, through which Rivière Tafonata flows into the sea. The coast northward of the beach becomes rocky, and rises to the rugged Mont Crispolaggio, 1,066 feet high, one mile inland. Shoal water

*General charts 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

extends about  $3\frac{1}{2}$  cables off the coast half a mile northward of the beach.

Anse Ottioni, about one mile northward of Port Chiavari, extends half a mile eastward, with a width of from half a mile to 3 cables; the anchorage is bad. The coast between Anse Ottioni and Pointe Sette Nave,  $1\frac{1}{2}$  miles west-north-westward, is encumbered with shoals. Anse Medea, called by corruption Port de Calamède (Cala Medea), half a mile eastward of Pointe Sette Nave, affords shelter to fishing boats; there is a violet-coloured house on a hill at its head. 5 10

**Pointe Sette Nave** (*Lat. 41° 51' N., Long. 8° 45' E.*) is the western end of Presqu'île Isolella, which is nearly isolated, and has a tower on its summit, 216 feet high; rocks above water extend nearly one cable westward from the point, and a rock with about 3 fathoms water lies  $3\frac{1}{2}$  cables southward of the tower. 15

**Roche de la Campanina**, with one foot water, lies half a mile south-westward from Pointe Sette Nave; between it and the point there is a depth of 7 fathoms, with very deep water close outside.

**Beacon.**—A masonry beacon tower, surmounted by a sphere, 20 23 feet high, and painted red and black in horizontal bands, stands on the rock.

**Rocks.**—Northward of Tour Isolella, and 3 cables off-shore, is a rock awash with 15 to 27 fathoms close around. A quarter of a mile further eastward are several large islets, from which a rocky spit 25 extends a cable northward.

**Port de Sainte Barbara**, between the islets just mentioned and a line of rocky patches which extend about 4 cables north-eastward from the shore about a quarter of a mile to the eastward, affords anchorage for small vessels, but it is open to the north-westward. 30 There is also anchorage on the east side of the rocky patches.

**The coast** continues rocky, and is bordered by shoal water to  $1\frac{1}{4}$  miles eastward of Sainte Barbara; it then turns northward, and is a beach for one mile. A house, surrounded by trees, is situated on the beach about 3 cables from its southern end, and a patch of 35 rocks extends nearly a quarter of a mile off it. At the north end of the beach is a point from which rocks and shoal water extend 3 cables south-south-westward, whence the coast trends north-westward about 4 cables to Pointe de Vescovo; a spit extends a cable off this point, and a quarter of a mile south-westward of the point is a 40 detached rock with 6 feet water.

Between Pointe de Vescovo and Pointe de Porticcio, half a mile to the northward, is a small bight off the entrance to which is Ecueil

*General charts 430, 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 40' W.*

d'Orbera (Dorbera), a group of rocks above water, surrounded by shoals.

*Plan, Bay and Port of Ajaccio, on 1126.*

5 **Pointe de Porticcio** is clifty and foul with a rock awash about one cable to the north-westward; on it is a chalet with a red roof. The coast in this locality should be approached with caution. Tour Castagna well open westward of La Campanina beacon leads westward of Écueil d'Orbera and the shoals off Pointe de Porticcio.

10 **The shore** from Pointe de Porticcio trends eastward one mile, and being bordered by rocks extending off a short distance, should not be closed to less than 3 cables; it then turns north-westward 3 miles to Pointe d'Aspretto, forming a bay at the head of which is Plage de Capitello, a clear sandy beach.

15 **Rivière Prunelli** flows into the sea about one mile from the south end of the beach, and its southern entrance point is a small hill on which is Tour Capitello; the beach to the southward is called Plage de Viva and that to the northward Campo dell' Oro. Rivière Gravonne (Gravone) enters the sea near the northern end of the beach.

20 **Pointe d'Aspretto** (*Lat. 41° 55' N., Long. 8° 46' E.*) is the east point of Baie d'Ajaccio, and on it are two forts, one near its extremity and Fort d'Aspretto, the other, on a hill, 160 feet high, 2 cables to the northward; there is a lazaretto on the west coast.

**Wireless telegraph.**—There is a wireless telegraph station on 25 the coast 2 cables south-westward from Fort d'Aspretto, the two masts being in the sea. It is open to the public from 7h. a.m. to 10h. p.m.; the call letters are F.F.A.

**Les Scoglietti**, a plateau of rocks above and below water, extend 3½ cables southward from Pointe d'Aspretto; there are some boat 30 channels over the plateau. The outer rocks above water should not be approached within 2 cables. The sea breaks on Les Scoglietti with westerly winds.

**Quarantine anchorage.**—Aspretto anchorage, eastward of the point, is in from 9 to 15 fathoms, mud, sheltered by Les Scoglietti; 35 the depths decrease suddenly from 6 and 9 fathoms to the shore bank; it is reserved for vessels in strict quarantine.

**Ajaccio approach.**—Fairway reserved for traffic 40 when submarine vessels are exercising.—When the flag, upper half red and lower half yellow, is hoisted at Tour de Parata signal station, certain flagstaffs, or by the vessel escorting the submarine vessels, indicating that the latter are exercising submerged, vessels entering or leaving must use the fairway, in which submarine

*General charts 429, 430, 1131, 1780, 2158a, 449.*

*Plan, Bay and Port of Ajaccio, on 1126. Var. 9° 40' W.*

vessels are prohibited from exercising submerged, limited, on the east by the alignment of Ajaccio citadel and Mont Rotondo, 8,626 feet high, 22 miles, 38° true, and on the north by the north shore of the gulf.

5

**BAIE AND PORT D'AJACCIO.**—Baie d'Ajaccio extends northward about a mile between Pointe d'Aspretto and a point on which is La Citadelle, about one mile west-south-westward. The shore from Pointe d'Aspretto trends north-westward about half a mile, and rocks and shoal water extend  $1\frac{1}{2}$  cables off it; a sandy beach then curves westward round the head of the bay to Port des Cannes. There is a conspicuous high chimney near the beach, about  $3\frac{1}{2}$  cables northward of the lazaretto; the railway from Ajaccio to Bastia runs along the beach. Castel Vecchio stands on a hill, 121 feet high, about a cable within the north-west corner of the bay, and on the shore about a cable southward of it is a house with a white gable amongst some red and yellow buildings. Five oil tanks are situated on the shore south-eastward of the castle. The town is on the western shore of the bay, and Mont Salario, a little over half a mile to the westward of it, is covered with olives, and there are many mortuary chapels on its slopes. There are depths of from 30 to 63 fathoms in the entrance to the bay, which quickly decrease to 20 fathoms, and thence gradually to 5 fathoms near the head.

10

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**Écueil de la Citadelle**, a small detached rock, with  $1\frac{1}{2}$  fathoms water, lies  $2\frac{1}{2}$  cables southward of La Citadelle, and shoal water extends from La Citadelle to half a cable from it. A rock with  $1\frac{1}{4}$  fathoms water lies  $1\frac{1}{2}$  cables northward, and a rock with 2 fathoms water  $1\frac{1}{4}$  cables westward, of Écueil de la Citadelle. At night, Jetée de Margonajo light open eastward of Jetée de la Citadelle light leads eastward of the rocks.

30

**Beacon.**—A black masonry beacon, surmounted by a cylinder, 25 feet high, and bearing the word "Citadelle" in white letters, stands on the rock (*Lat. 41° 55' N., Long. 8° 45' E.*).

**Telegraph cable beacons.**—A telegraph cable is landed close westward of La Citadelle, where two beacons, painted blue and white in horizontal bands, and surmounted by white discs, in line bearing 25° true, indicate its direction. Anchorage is prohibited in the vicinity.

35

**Jetties.**—Jetée de la Citadelle extends north-eastward 240 yards from the north-eastern side of La Citadelle, and it is being extended a further distance of 90 yards north-north-eastward. In the middle of the northern side of the jetty is a large discharging quay, with from 16 to 26 feet water alongside, which is protected by a shelter wall, but notwithstanding this, the sea breaks over it in heavy south-

40

*General charts 429, 430, 1131, 1780, 2158a, 449.*



*Plan, Bay and Port of Ajaccio, on 1126. Var. 9° 40' W.*

westerly weather. The works in progress for extending this jetty are covered by a *green* sector of Jetée de la Citadelle light and by a *red* sector of Jetée du Lavoir light.

- 5 Jetée du Lavoir extends eastward 230 yards from the shore 3 cables northward of Jetée de la Citadelle. Quai Napoleon is on the shore between the two jetties, and it has been partly dredged to a depth of 22 feet. The Harbour and Port offices are on the southern end, and the Health office on the northern end of the quay.

- 10 Jetée de Margonajo extends eastward about 300 yards in a slight curve from the shore, 3 cables northward of Jetée du Lavoir. A quay extends from the root of the jetty about 3 cables northward to Plage des Cannes. A jetty extends south-westward from the shore in the north-east corner of the bay into 16½ feet water.

- 15 **LIGHTS.**—A light is exhibited, at 62 feet above high water, from a circular grey turret, 40 feet high, on the eastern advanced point of La Citadelle (*Lat. 41° 55' N., Long. 8° 45' E.*).

A light is exhibited, at 45 feet above high water, from a grey metal column, 19 feet high, on the old outer end of Jetée de la Citadelle.

- 20 A light is exhibited from a white metal column, 19 feet high, on the outer end of Jetée du Lavoir.

A light is exhibited from a grey metal column, 24 feet high, on the outer end of Jetée de Margonajo.

- Buoys.**—A black spindle buoy, surmounted by a cylinder, is  
25 moored off the works in progress for extending Jetée de la Citadelle.

A black spindle buoy, surmounted by a cylinder, is moored off the end of Jetée du Lavoir.

- Two white buoys, in 5 fathoms water, mark the north-eastern and south-eastern limits of La Citadelle anchorage, so that there may be  
30 access to Quai Napoleon.

- Anchorage.**—There are three anchorages on the western side of the bay. La Citadelle or Town anchorage, the southernmost, is off the southern part of the town, between Jetée de la Citadelle and Jetée du Lavoir, in from 3¼ to 4¼ fathoms. There is good shelter here in  
35 ordinary weather, but with strong south-westerly winds in winter the sea becomes heavy southward of La Citadelle, and breaks against the jetty, sometimes even rounding it and breaking against Quai Napoleon; then there is but little shelter except close northward of Jetée de la Citadelle, where vessels are moored with their sterns to  
40 the jetty; other vessels have to obtain shelter at Cannes anchorage.

Capucins anchorage lies between Jetée du Lavoir and Jetée de Margonajo; here large vessels anchor in about 12 fathoms, mud, and good holding ground, and the sea is much less than at La Citadelle anchorage during south-westerly winds. This anchorage is reserved

*General charts 429, 430, 1131, 1780, 2158a, 449.*

*Plan, Bay and Port of Ajaccio, on 1126. Var. 9° 40' W.*

for French vessels of war when required; it is covered by the *green* sector of Jetée de Margonajo light.

Cannes anchorage is northward of Jetée de Margonajo in 8 fathoms, mud. It is sheltered from westerly winds, but in very exceptional 5 circumstances a heavy sea is caused by south-easterly winds. It is generally used in winter; the principal part is reserved for French vessels of war. The anchorage is covered by the *red* sector of Jetée de Margonajo light.

**Prohibited anchorage.**—The part of Cannes anchorage 10 reserved for French vessels of war must not be entered; it lies inside floating booms maintained by four buoys, extending from about half a cable eastward to 2½ cables north-eastward of Jetée de Margonajo light.

**Pilotage.**—There is a pilot station at Ajaccio limited northward 15 between the Greek chapel and the cemetery, and southward by Tour d'Isoella. Merchant sailing vessels under 300 tons pay 10c. per ton, and over 300 tons 5c. per ton, both on entering and leaving. When an entering vessel is not boarded by a pilot until within the limit of the station, but outside Écueil de la Citadelle, one-half the 20 rate is paid; if boarded inside this rock there is no obligatory charge.

There are special rates for vessels of war.

**Speed.**—The speed of steam vessels entering or leaving the port must not exceed 10 knots when northward of a line drawn 90° true from La Citadelle lighthouse, to prevent damage to the works in progress at Jetée de la Citadelle. 25

**The town** of Ajaccio stands on the low rocky point on which is La Citadelle (*Lat. 41° 55' N., Long. 8° 45' E.*), and thence northward on the west shore of the bay. It has two or three wide streets, of which the principal is Cour Napoleon, a long thoroughfare, with a 30 row of orange trees on each side; the houses are large and lofty, but have no architectural beauty. It is the seat of a bishopric, has a royal court and other judicial establishments, a college, a model school, a public library, a good theatre and picture gallery, and a fine promenade along the bay. La Citadelle was built in 1554. Ajaccio is 35 the capital of the Island of Corsica, and Napoleon I. was born here on 15th August, 1769. The town is supplied with water by an aqueduct from Rivière Gravonne. The population in 1911 was 22,264.

A British Consul resides at Ajaccio.

**Winds.**—North to west winds prevail at Ajaccio throughout the 40 year; in fine summer weather the westerly wind blows in the bay from 10h. a.m. till 5h. p.m. and moderates the temperature, the nights being calm and warm. The sirocco does not often blow.

*General charts 429, 430, 1131, 1780, 2158a, 449.*

*Plan, Bay and Port of Ajaccio, on 1126. Var. 9° 40' W.*

**Meteorological table.**—*See* Appendix No. III.

**Hospital.**—Seamen are received at Sainte Eugénie hospital, which is under the control of the municipality.

5 **Trade.**—The principal imports are coal, building materials, sugar, glass and earthenware, forage, textiles, hardware, wheat, iron, steel, paper and stationery, soap, wine, and spirits; and the exports are timber, charcoal, gallic acid, citrons, arsenic, bark for tanning, chestnuts, cork, briar wood for pipes, fruit, minerals, mineral waters,  
10 wine, olive oil, and cheese. In 1913, the imports amounted to 1,269 tons, and the exports to 9,111 tons.

**Supplies.**—Provisions are generally plentiful, but two or three days' notice is required for large quantities; meat is poor and dear; water can be obtained free from a hydrant on the quay; it is good,  
15 but usually requires filtering.

**Coal.**—There are no coal merchants, and only sufficient stock is kept for private houses.

**Repairs.**—There are two machine shops, where ordinary repairs can be undertaken.

20 **Patent slip.**—*See* Appendix No. I.

**Communication.**—The Fraissinet line, which carries the mails, has three services weekly to Marseille or Nice, besides a coasting service. There is communication between Ajaccio and Bona by the vessels of Compagnie Generale Transatlantique. There is a railway  
25 to Ponte Leccia, where it connects with the line between Bastia and Calvi. There is telegraphic communication. Wireless telegraph, *see* page 172.

**Life-saving station.**—A lifeboat is stationed in the port, and there are two rocket apparatus, one at the Custom house, and the other  
30 at the Port office.

**The coast** from La Citadelle trends westward 6 miles to Pointe Parata (*Lat. 41° 54' N., Long. 8° 37' E.*); it is rocky, and rises to the ridge of Mont de Saint Antoine, which extends westward from the town of Ajaccio.

35 **Pointe de Maestrello** lies about 6 cables west-south-westward of La Citadelle, at the western end of the town, and there is a battery on it. Sainte Eugénie hospital, on the coast about 1½ cables north-eastward of the point, is a large building. Close within the point is the Normal school and convent of Sainte Marie.

40 There is a Greek chapel on the coast half a mile west-south-westward of Pointe de Maestrello, and about 6 cables further westward is the cemetery.

*General charts 429, 430, 1131, 1780, 2158a, 449.*

*Plan, Bay and Port of Ajaccio, on 1126. Var. 9° 40' W.*

**La Guardiola**,  $2\frac{1}{2}$  cables southward of the Greek chapel, is a small rock with about 2 fathoms water; it is situated on the south-east edge of a shoal, and Rocher Butticino, one foot high, lies one cable to the westward, on the western edge of the shoal. About  $1\frac{1}{2}$  cables southward of Butticino are two detached rocks, each with  $4\frac{1}{2}$  fathoms water. 5

**Beacon.**—A black masonry beacon, surmounted by a cylinder, 25 feet high, stands on La Guardiola.

**La Botte** (Rocher Stivale) lies  $1\frac{1}{2}$  cables off-shore, southward of the cemetery, and 6 cables westward of La Guardiola beacon; it is 13 feet high, but a rock awash lies a cable to the south-westward. Rocher Butticino is locally named Botte de la Chapelle des Grecs, and La Botte, Botte du Cimetière. 10

*Chart 429, Cape Feno to Lava bay.* 15

**The coast** between the cemetery and Pointe Scudo,  $1\frac{1}{4}$  miles to the westward, is bordered by rocks which extend off about  $1\frac{1}{2}$  cables. A little inland and about half a mile north-eastward of the point is Barbicaja house with a square tower.

**Pointe Scudo** is low and rocky, with rocks extending 2 cables to the southward; one mile northward of the point is Sommet Scudo, 1,736 feet high, in the shape of a mitre, the highest point of Saint Antoine range. 20

**Pointe Parata** is the end of a peninsula which projects about three-quarters of a mile south-westward from the coast line; it is a nearly detached hill, 190 feet high, and on it is Tour de Parata. On the east side of the point is a beach about 2 cables in length, about a quarter of a mile off which there is anchorage in from 8 to 10 fathoms, mud and weeds, well sheltered from north-westerly winds. 25

**Signal station.**—There is a semaphore at Tour de Parata. 30

**Mont Lisa**,  $4\frac{1}{2}$  miles north-eastward of Pointe Parata, has an indented summit, 2,592 feet high, surmounted by a square rocky column. Mont Pozzo di Borgo, about one mile east-north-eastward of it, is a conical summit, 2,559 feet high.

**LES SANGUINAIRES**, a chain of one island and three islets or rocks, extend  $1\frac{3}{4}$  miles south-westward from Pointe Parata. Grande Sanguinaire, the outer of the group, is about three-quarters of a mile long north-east and south-west, about one-quarter of a mile broad, and rises to two little peaks, the higher, near the north-east end, on which is the lighthouse (*Lat. 41° 53' N., Long. 8° 36' E.*), being 263 feet high. The other peak is at the south-west end, where there is a tower and semaphore 260 feet high, which is now closed. 35 40

*General charts 430, 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 50' W.*

The island is skirted with rocks, and nearly connected to its north-east end is *Ilot Cala d'Alga*; the rocks extend one-quarter of a mile south-westward from *Grande Sanguinaire*, the outermost having 3 feet water, and a bank with 6 fathoms at its extreme, extends half a mile south-westward of the rocks. *Pointe du Tabernacle* is the south-east point of the island, and on its north side is a small rocky cove and landing place.

The passage between *Grande Sanguinaire* and *Pointe Parata* is obstructed by *Les Petites Sanguinaires*, the smaller islets and rocks; *Ilot Porre*, or *des Porreaux*, a quarter of a mile south-westward of the point, is the largest. *Passe des Sanguinaires*, between *Ilot Porre* and *Pointe Parata*, has a depth of 24 feet water in its northern part; there are some rocks close off *Pointe Parata*.

**LIGHT.**—A light is exhibited, at 322 feet above high water, from a grey square tower with basement, 63 feet high, on the highest part of *Grande Sanguinaire*, and half a mile from its south-western end.

**Écueil du Tabernacle**,  $6\frac{1}{2}$  cables south-eastward from *Pointe du Tabernacle*, is small, with  $1\frac{1}{2}$  fathoms water.

**Buoy.**—A black spindle buoy, surmounted by a cylinder, is moored close to the southward of the rock.

**Rock.**—A rock, with 3 fathoms water, lies about a quarter of a mile south-eastward from *Pointe du Tabernacle*.

**Clearing marks.**—*Tour de Feno* open westward of *La Botte de Feno*,  $13^\circ$  true, leads westward of the shoals south-westward of *Grande Sanguinaire*, and *La Citadelle* open southward of the Greek chapel,  $60^\circ$  true, leads southward of the shoals and also of *Écueil du Tabernacle*.

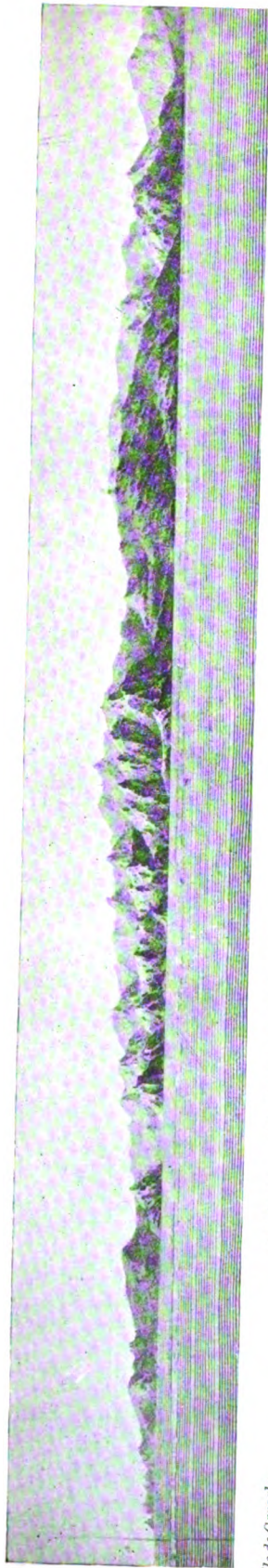
At night, *La Citadelle* light in sight leads southward of the shoals off *Grande Sanguinaire*, the light being obscured when bearing eastward of  $58^\circ$  true.

**Pointe de la Corba** (*Lat.  $41^\circ 54' N.$ , Long.  $8^\circ 37' E.$* ) 8 cables northward of *Pointe Parata*, has a pyramid on it, and is bordered by rocks to the distance of from one to 2 cables, which continue off the coast about  $1\frac{1}{2}$  miles northward to *Anse de Minaccia*; at the head of this bay is a sandy beach, and about 7 cables eastward of it is the belfry of *Pisinala* church. A rocky patch, with 5 feet least water, lies about a cable north-westward of the southern point of the bay.

**The coast** from *Anse de Minaccia* trends north-westward  $1\frac{1}{2}$  miles to *Cap de Feno*, and rocks extend about a cable off it.

**Ilot de la Botte de Feno**, about three-quarters of a mile westward of the north point of *Anse de Minaccia*, is small and low, with sunken rocks close around it. Between the islet and the coast there are from 6 to 10 fathoms water.

*General charts 430, 1131, 1780, 2158a, 449.*



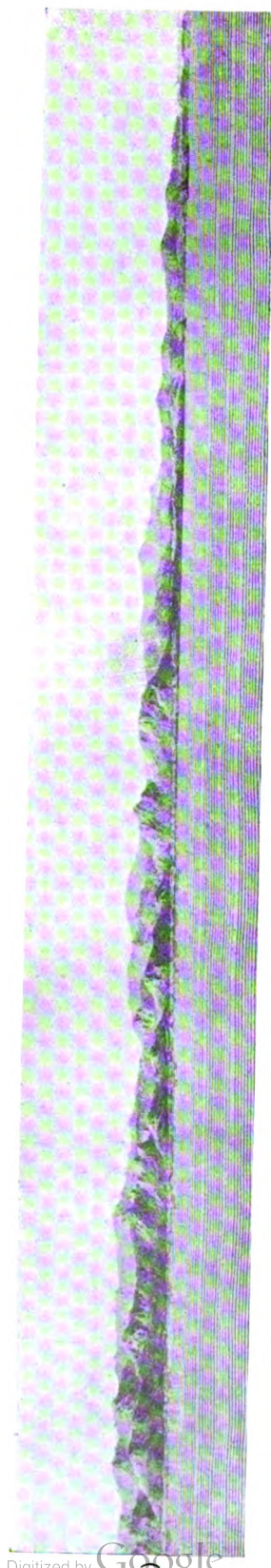
(a)

*Ile de Gargalo.*

*Cap Cenino. Cap Rosso, bearing  $43^{\circ}$  true,  
about 13 miles.*

*Pointe de Cargèse.*

*Golfe de Sagone.*



(b)

*Cap de Feno.*

*Corsica, west coast.*

*Les Sanguinaires.*

*Cap Muro.*



*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

Ecueil de Fico, with 6 feet water, lies 3 cables off-shore and half a mile northward of La Botte.

**Cap de Feno** (*Lat. 41° 58' N., Long. 8° 36' E.*) is high and rugged; Tour de Feno is on its southern slope; some rocks extend a short distance off the cape. View at page 178. 5

**GOLFE de SAGONE** extends eastward 7 miles between Cap de Feno and Pointe de Cargèse, 10 miles to the northward, and contains several bays with beaches, and anchorages during off-shore winds; it is open to westerly winds, which are strong, and a heavy sea reaches all the anchorages. Several rivers flow into the gulf, the principal being Rivières du Liamone and de Sagone. View at page 178. 10

**The coast** from Cap de Feno trends eastward  $1\frac{1}{2}$  miles to Pointe de Pietra Rossa, and is high and cliffy. Pietra Piombata or Ciontra, about 4 cables off the coast, one mile eastward of Cap de Feno, is a flat islet, 100 yards long, about 10 feet high, and surrounded by a rocky bank. There are from  $3\frac{3}{4}$  to  $5\frac{1}{2}$  fathoms water between it and the land, but this passage should not be used for navigation. 15

**Baie de Lava.**—From Pointe de Pietra Rossa short sandy beaches, separated by rocky points, trend eastward and northward to Pointe Pelusella,  $3\frac{1}{2}$  miles from the cape, Baie de Lava lying between. 20

Ilot de la Figiera, just eastward of Pointe de Pietra Rossa, is surrounded with rocks and banks.

**Port Provençale**, in the north-east corner of the bay, where there is a sandy beach half a mile long north and south, affords anchorage with off-shore winds in from 6 to 10 fathoms, sand and mud, 2 cables from the shore; Rivière Lava flows into the port. 25

**The coast** from Pointe Pelusella trends northward and north-eastward  $4\frac{1}{2}$  miles to Pointe de Palmentojo, and is high, cliffy, and fringed with rocks. 30

Close westward of Pointe Pelusella is a rock, one foot high.

Pointe Parragiola is about half a mile north-north-westward of Pointe Pelusella, and off it is a rock or islet on which is a pyramid.

A bank with 14 fathoms least water, coral, lies about  $1\frac{1}{2}$  miles north-westward of Pointe Parragiola; it is named Banc de Provençale by the local seamen, and is a good fishing ground. 35

Pointe Castellaccio is  $1\frac{1}{2}$  miles from Pointe Parragiola, and a bank with from 6 to 10 fathoms extends half a mile north-north-westward from it; there is a heavy sea on the bank during north-westerly winds. 40

**Pointe Paliagi**, about a mile eastward of Pointe Castellaccio, is bordered by shoal water to the distance of a cable, leaving a passage

*General charts 429, 1131, 1780, 2158a, 449.*



*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

between it and Récif de Paliagi, about a quarter of a mile wide, with from 6 to 16 fathoms water.

- Récif de Paliagi**,  $3\frac{1}{2}$  cables in extent, with 3 feet least water, lies about 4 cables northward of Pointe Paliagi. Vessels are recommended to pass northward of the reef, with the house of the salines, on Liscia beach, open northward of Pointe de Palmentojo.

- Anse d'Ancone**, southward of Pointe de Palmentojo, is a small creek, ending in a beach, where landing can be effected under shelter of some rocks.

**Pointe de Palmentojo** is the north-west extreme of Presqu'île d'Orcino; several islets lie within 2 cables north-westward of the point, and shoal water extends 2 cables westward from them.

- Baie de Liscia** extends eastward about one mile from its entrance between Pointe de Palmentojo and Pointe Locca,  $1\frac{1}{4}$  miles to the northward.

- Tour d'Orcino is on the north side of Presqu'île d'Orcino, the rocky coast of which trends eastward about three-quarters of a mile to the southern end of Liscia beach. The beach extends north-eastward 6 cables to the mouth of Rivière Liscia; the shore then turns northward and westward, and is rocky to Pointe Locca. There is anchorage in fine weather in the north-eastern corner of the bay, about 2 cables off-shore in 7 fathoms, weeds.

- Pointe Locca** has several detached islets within 2 cables westward of it. Tour de Capigliolo is on a hill, 351 feet high, near the point.

- The coast** from Pointe Locca trends northward  $1\frac{1}{2}$  miles to Pointe Sainte Joseph, and is a clean beach off which shoal water extends  $1\frac{1}{2}$  cables. Rivière Liamone flows through the middle of the beach, and can be entered by boats. A wooden bridge, 120 yards long, crosses the river about a cable within the entrance.

**Pointe Saint Joseph** (*Lat.  $42^{\circ} 5'$  N., Long.  $8^{\circ} 42'$  E.*) projects south-westward, and there are some rocky islets off it.

- Récif de Saint Joseph**, about half a mile south-westward of Pointe Saint Joseph, is a rock about 3 feet high, and several sunken patches on the northern of which is a rock awash, the whole extending about 4 cables north-east and south-west; in bad weather the sea breaks on it. There are from  $4\frac{1}{4}$  to  $6\frac{1}{2}$  fathoms water in the passage, about a quarter of a mile wide, between the reef and the islets off the point, but only about one fathom a little seaward of the islets. Écueil de Marifaja a little open south-westward of the outer rock off Pointe de Cargèse leads through the passage, which requires caution.

*General charts 1131, 1780, 2158a, 449.*

*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

**Baie de Sagone** is comprised between Pointe Saint Joseph and Pointe de la Batterie,  $1\frac{1}{2}$  miles north-north-westward; its north-eastern extreme is a sandy beach at the north-western end of which Rivièrè Sagone flows into the bay. 5

Sommet de Saltelle, 3,032 feet high, on which is a pyramid, is situated about 3 miles east-north-eastward of the bay.

**Directions.**—Give a berth of 4 cables to the outer rock above water of Récif de Saint Joseph; pass more than three-quarters of a mile from Pointe de Puntiglione, and 4 cables from Pointe de la Batterie. 10

**Anchorage.**—Between Pointe de la Batterie and the mouth of the river is Tour de Sagone on the cliffs, 121 feet high, and about  $1\frac{1}{2}$  cables east-south-eastward of the tower temporary anchorage can be obtained in about 7 fathoms, sand and weeds; small vessels moor farther in with anchors seaward and sterns secured to bollards on the shore. With strong north-easterly winds heavy squalls come down from the high land and the bay is open to south-westerly winds and sea. The anchorage is dangerous in winter. 15

**Sagone village** (*Lat. 42° 7' N., Long. 8° 42' E.*), situated on the eastern part of the beach, is a few houses distributed along the road which runs to Ajaccio and Cargèse; westward of the village are a church and a mortuary chapel. Landing can be effected on the western end of the beach, when westerly winds prevent landing at the village. There is a small pier about 150 yards northward of Tour de Sagone. 20 25

**Life-saving station.**—There is a rocket apparatus at Sagone Custom house.

**The coast** from Pointe de la Batterie trends westward about one mile to Pointe de Puntiglione, and the water is shoal for about 2 cables off it. 30

**Pointe de Puntiglione** is rugged, rocky, and rises to Mont Camiola, 1,138 feet high,  $1\frac{1}{2}$  miles north-eastward. Plateau de Puntiglione, a spit with  $1\frac{1}{2}$  fathoms water, extends  $1\frac{1}{2}$  cables south-south-westward from the point, with depths of from  $5\frac{1}{2}$  to 10 fathoms for 6 cables further south-south-westward; the sea breaks on it with on-shore winds. Tour d'Omignia open south-westward of Pointe de Cargèse leads south-westward of the plateau. 35

**The coast** between Pointe de Puntiglione and Pointe de Cargèse,  $3\frac{3}{4}$  miles west-north-westward, is rugged, in places fringed with rock, and sinuous; Pointe des Moines,  $1\frac{1}{2}$  miles from Pointe de Puntiglione, and Pointe de Molendino are the two principal projections. 40

*General charts 1131, 1780, 2158a, 449.*

*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

**Écueil de Marifaja** (*Lat. 42° 7' N., Long. 8° 37' E.*), nearly a mile west-south-westward from *Pointe des Moines*, is about 4 feet high, with shallow water extending a short distance eastward.

- 5 Between the rock and *Pointes des Moines* and *de Molendino*, to the eastward and northward, there are depths of from 7 to 15 fathoms.

**Pointe de Cargèse**, the extreme of a peninsula, is steep, rather low, and a rock awash lies a short distance off it.

- 10 Cargèse village, about 6 cables eastward of the point, is built on the southern slopes of a ridge of hills, 310 feet high; in front of the houses are two steeples. On a hill eastward of the village is a ruined tower, and on a hill, 532 feet high, westward of the village, was a ruined tower with a masonry pyramid at its base; the pyramid, the only part now existing, was a principal mark used in the coast survey.

- 15 Locally, *Pointe de Cargèse* is the name given to the western point of a small bay southward of the village, the extreme of the peninsula being named *Puntiglione de Cargèse*.

**Life-saving station.**—There is a rocket apparatus at Cargèse Custom house.

- 20 **Baie de Pero** is comprised between *Presqu'île de Cargèse* and *d'Omignia*, about  $1\frac{1}{2}$  miles north-westward; there is a small sandy beach at its head, into which *Rivière de Pero* flows. The bay is open south-westward.

- 25 **Pointe d'Omignia** is the termination of a tongue of steep land projecting  $1\frac{1}{2}$  miles south-westward; there are some rocks close off it. *Tour d'Omignia* stands a little eastward of the point.

- 30 **Baie de Chioni** extends about  $1\frac{1}{2}$  miles eastward from its entrance between *Pointe d'Omignia* and *Pointe d'Orchino*,  $1\frac{1}{2}$  miles to the northward; it narrows to half a mile at its head, where there is a sandy beach, and into which *Rivière Chioni* flows. Nearly a mile south-eastward of the head of the bay is *Lozzi* village, and *Malzone* village is about  $1\frac{1}{2}$  miles north-north-eastward of *Lozzi*.

- 35 **Presqu'île d'Orchino** is high, and its south coast presents blackish cliffs. About half a mile eastward of *Pointe d'Orchino*, the west extreme of the peninsula, is a round hill, 604 feet high, with *Tour d'Orchino* on it.

There is an islet about a cable off the coast southward of the tower.

*Pointe d'Orchino* (locally *Pointe Nero*) has a remarkable islet close off its cliffs. The north coast of the peninsula is steep cliffs.

- 40 **The coast** between *Pointe d'Orchino* and *Cap Rosso*, 4 miles to the northward, forms several bays and coves which are used by fishing boats. *Anse d'Arone*, one of these bays, situated  $1\frac{1}{2}$  miles northward of *Presqu'île d'Orchino*, has a sandy beach at its head, through

*General charts 1131, 1780, 2158a, 449.*

*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

which Rivière Sologna flows. Pointe Tuselli, the western point of the bay, is the extreme of a peninsula, which projects about three-quarters of a mile south-westward; a reef extends 2 cables westward from the point, and at its outer end are two rocks just above water. 5

Between Pointes Tuselli and Lancisca, about 9 cables to the northward, is Porto alla Leccia, a bay, which has neither shelter nor landing. Anse de Palo, northward of Pointe Lancisca, is surrounded by blackish cliffs, which are bordered by rocks. L'Homme de Palo is a square isolated rock situated near the shore at the head of the northern part of the bay, and there is anchorage south-eastward of it with north-westerly winds, but the shelter is precarious. 10

**Cap Rosso** (*Lat. 42° 14' N., Long. 8° 33' E.*).—The south-western coast of Presqu'île de Rosso is cliffs, the height of which increases to the cape, its western extreme; the peninsula is a high, broken, and nearly isolated mass, 1,122 feet high, with Tour Turghio on its summit, and on the edge of a precipice, 985 feet high. View at page 178. Black rock (Rocher Noir), close to the land, half a mile south-eastward of the cape, is very steep. Three steep reddish islets lie close off the cape. 15 20

**Golfe de Porto** extends eastward  $5\frac{1}{2}$  miles from its entrance between Cap Rosso and Presqu'île de Cenino,  $5\frac{1}{2}$  miles north-north-eastward. View at page 178. The gulf is open to the westward, and there are no anchorages. The south shore is cliffy, mountainous, and trends eastward to a small sandy beach at the head of the gulf, where Rivière de Porto enters the sea. The shore from the mouth of the river trends north-westward to Pointe Scopa, the southern extreme of Cenino promontory. The water in the gulf is very deep; several rocks above water lie a short distance from the south shore; a rock with 2 fathoms water lies a cable off the north point of Presqu'île de Rosso; and a rock with 3 fathoms water lies 2 cables northward of Pointe Vardiola and  $1\frac{1}{4}$  miles from Cap Rosso. Ilot Vardiola, a quarter of a mile eastward of the point, has a conical summit, on which is a pyramid; shoal water extends 3 cables from the shore eastward of the islet. A rock with 6 feet water lies 2 cables west-north-westward of Pointe Piana, about one mile eastward of Ilot Vardiola, and a rock with  $1\frac{1}{2}$  fathoms water close northward of Pointe Ficajola, about 4 cables further eastward. 25 30 35

Anse de Ficajola lies eastward of the point, and at its head is a little beach into which a stream flows; Vistale and Piana villages are on the slopes of the valley, and are not visible from near the land. There is a telegraph office at Piana village. 40

**Life-saving station.**—There is a rocket apparatus at Piana Custom house.

*General charts 1131, 1780, 2158a, 449.*

*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

**Anse de la Castagna** is a small bight on the east side of Pointe Capicciolo, which is 3 miles eastward of Pointe Piana, and in summer it affords sheltered anchorage for two small vessels which secure their  
 5 sterns to bollards on the rocks. Water can be procured on the south-east shore of the cove.

**Porto.**—Rivière de Porto flows into the gulf at the northern end of a small sandy beach, and about three-quarters of a mile eastward of Pointe Capicciolo. On the north side of the river entrance is a  
 10 small rocky promontory, on which is a square tower. Here there is a small stone mole, with 5 feet water at its foot, which serves to shelter boats, it being impossible to lie alongside on account of the swell which comes in with the least wind; there is a rock awash northward of the mole.

15 Porto is a village of five or six houses, situated near the mole. Landing is difficult when there is any swell. Timber is exported.

**The shore** from Porto is clifty to la Plage de Bussagna, distant three-quarters of a mile; Rivière de Bussagna flows through the north end of the beach.

20 Pointe Bianca is very high blackish cliffs. At the head of the little bay between Pointes Pastricciola and Miserino the cliffs are broken by a beach. There is also a beach in the little bay north-westward of Pointe Caspio, and  $1\frac{1}{4}$  miles inland from it is Partinello village, at the bottom of a gorge. In Anse de Gradelle there is a beach with a  
 25 house near it; the point westward of the beach is high cliffs, bordered by some rocks above water.

Pointe Latoné is high and conical in shape; there is a pyramid on its summit; there are cliffs bordered by rocks between this point and Pointe de Lignaggia, which is almost vertical and black in colour.

30 Osani village lies nearly three-quarters of a mile northward of the head of Anse de Lignaggia, in the col comprised between the ranges of Curzu and Cenino. The steep porphyry cliffs end at Pointe Scopa, which is a little low peninsula.

**Cap Cenino** (*Lat. 42° 19' N., Long. 8° 36' E.*) is the western  
 35 extreme of Presqu'île de Cenino, the summit of which, half a mile to the eastward, is 2,030 feet high. The peninsula slopes directly to the sea on its south, west, and north coasts, and is very steep-to.

**Golfe de Girolata**, comprised between Cap Cenino and Pointe Rossa, is  $1\frac{1}{4}$  miles wide at the entrance, from which it extends 2 miles  
 40 north-eastward; it is surrounded by high land, and the depths in the middle of the gulf are considerable.

The shore from Cap Cenino trends north-eastward, and is steep rocky cliffs as far as the north foot of Mont Castellaccio, 1,089 feet high, where it turns northward with more accessible slopes. There

*General charts 1131, 1780, 2158a, 449.*

*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

is a little beach in Anse de Trara (Tuara), where landing can be effected in fine weather, and the track between Osani and Girolata reached.

Port de Girolata, in the middle of the head of the gulf, is eastward of a small peninsula projecting from the north side of a little bight; on the peninsula is a grey fort, within which is an old tower and some houses. The port, which is about a cable in length, is only accessible to boats, for the bottom is strewn with large stones thrown overboard from vessels after serving as ballast.

There is anchorage in about 10 fathoms one cable southward of the fort, but it is open to the westward.

**The shore** between Girolata and Pointe Rossa is rocky, and the few small beaches are at the base of cliffs, and do not afford landing. The cliffs from about a mile north-westward of Girolata to Pointe Rossa are dark red granite, and from 650 to 980 feet high.

**Caution.**—When navigating in Golfe de Porto or that of Girolata, pay attention to the weather so as not to be caught by westerly winds, which are indicated, a little in advance of their arrival, by flaky clouds appearing on Cap Rosso towards the evening or morning on the opposite side of the cape to the direction the wind will come from, that is, north-east, east, or south-east of the cape, according as the wind will come from south-west, west, or north-west. When Luccio forest, on the ridge to the north-eastward of Girolata, is covered by white clouds, westerly winds may be expected. The setting in of a swell is also an indication, but generally it precedes the wind by a very short time.

**Pointe Rossa**, the south-western termination of Mont Porcire, 1,772 feet high, is a high red cliff. There is a pointed islet close off it; rocks lie about three-quarters of a cable from the point.

**The coast** from Pointe Rossa trends northward  $2\frac{3}{4}$  miles to Pointe de Palazzo (*Lat. 42° 23' N., Long. 8° 33' E.*); it is very broken, and presents high dark red cliffs, within which it rises in steep slopes, covered in places with vegetation, to Mont Porcire.

**Île de Gargalo**, 2 miles northward of Pointe Rossa, is nearly half a mile in length north-west and south-east, 417 feet high, rugged, and red in colour; on its summit is a tower. It is separated from the coast by a channel about 50 yards wide, in which are scattered rocks; Îlot de Garganello lies close off its south end, and close to its north end is a remarkable high red rock; it is steep-to. There is no sheltered anchorage at Gargalo nor in its vicinity.

**Pointe de Palazzo**, projecting northward, is high red granite cliffs; Îlot Palazzo, close northward of the point, is a remarkable inaccessible rock, 190 feet high.

*General charts 1131, 1780, 2158a, 449.*

*Chart 430, Lava bay to Cape Morsetta. Var. 9° 50' W.*

The coast between **Pointe de Palazzo** and **Pointe Validori**, 2½ miles east-north-eastward, is divided by **Pointe Nera** into **Baie d'Elbo** and **Baie de Focolara**, both being open north-westward.

- 5 A rocky shoal extends about 3 cables northward from a narrow point, on which is **Tour d'Elbo**, near the head of **Baie d'Elbo**, and there is a rock off **Pointe Nera**.

- 10 **Pointe Scandola** is about half a mile eastward of **Pointe Nera**; **Îlot Pori** (**Porri**), 2 cables north-westward of the point, is 102 feet high, steep, and inaccessible.

**The coast** from **Pointe Validori** (*Lat. 42° 24' N., Long. 8° 36' E.*) trends northward about one mile to a point north-westward of **Mont Mufrareccia**, which is 1,339 feet high, and has a masonry pyramid on its summit. There are two unimportant bights on the coast.

- 15 **Les Scoglietti** are a group of rocks extending about 3 cables northward from the point north-westward of **Mont Mufrareccia**. The highest rock is 14 feet high, but noticeable, and about one cable north-westward of the group is a rock awash; small vessels can pass between the group and the shore. A short distance northward from the rocks  
20 is a rocky bank with 5 fathoms water, and 3 cables further northward is a rocky bank with 14 fathoms water.

- Clearing marks.**—The west cliff of **Île de Gargalo** well open north-westward of **Îlot Palazzo** leads north-westward, and **Tour de Galeria** well open northward of **Pointe Stollo** leads northward, of the  
25 group and the 5-fathom bank.

**Pointe Stollo** lies three-quarters of a mile eastward of **Les Scoglietti**, the coast between being fringed with rocks.

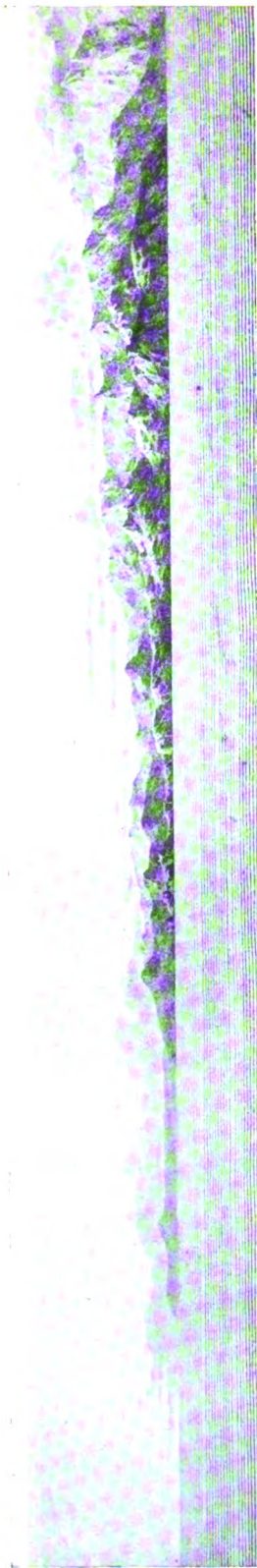
*Plan, Gulf of Galeria, on 1126.*

- Golfe de Galeria** extends south-eastward 1½ miles from its  
30 entrance between **Pointe Stollo** and **Pointe Ciuttone**, 1½ miles north-eastward. The shore from **Pointe Stollo** trends east-south-eastward one mile, and is cliffs, skirted with rocks, to **Pointe Fontana**. A little southward of this point is a beach which is followed to the eastward by a low shore, at the north end of which is **Tour Galeria** in ruins,  
35 but a pyramid was constructed on its base in 1888, and is probably still visible. Northward of the tower is the mouth of **Rivière Il Fango**, and a beach lined with trees extends half a mile; thence the shore becomes higher to **Pointe Ciuttone**.

- About 1½ miles southward of **Tour Galeria** is **Capo Tondo**, a peak  
40 2,756 feet high. View at this page.

A bridge crosses **Rivière Il Fango** about a mile eastward of its mouth, and a mile north-eastward of the bridge is a very noticeable conical summit, 1,148 feet high, on which is **Tour Margine** in ruins.

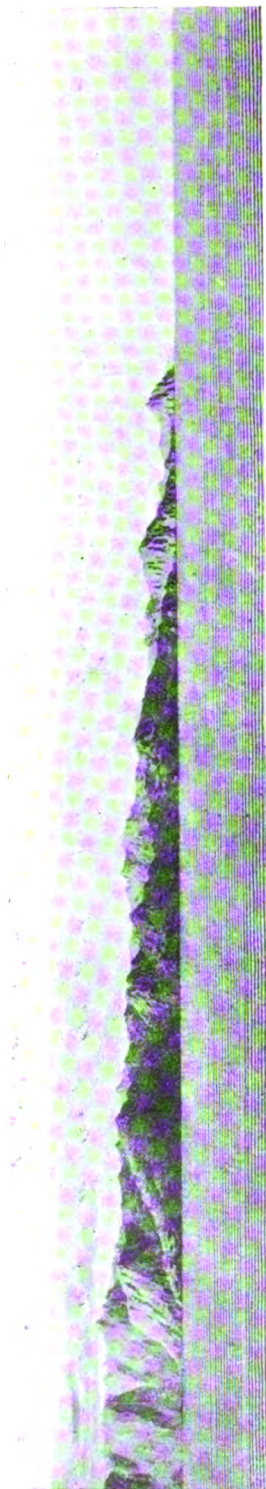
*General charts 430, 1131, 1780, 2158a, 449.*



(a)

*Pointe Revellata.*

*Mont Paglia Orba.*



(b)

*Capo Tonio.*

*Ile de Gorgo, bearing 156° true, about 12 miles.  
Cap Rosso.  
Corsica, north-west coast.*





*Plan, Gulf of Galeria, on 1126. Var. 9° 50' W.*

**Danger rock**, a bank with 6 feet water, lies  $1\frac{1}{2}$  cables eastward of Pointe Fontana.

**Anchorage** in the gulf is tenable only in summer, when small coasting vessels anchor in about  $2\frac{1}{2}$  fathoms water southward of Danger rock to load charcoal. Vessels of a larger size anchor northward of the rock in 8 fathoms water, but must quit as soon as a swell sets in. 5

**Village.**—The village of Galeria, consisting of some fifty houses, is a little within the sand beach on the southern side of the gulf; there are few inhabitants, and provisions are scarce. 10

**Life-saving station.**—There is a rocket apparatus at Galeria Custom house.

**Pointe Ciuttone** (*Lat. 42° 27' N., Long. 8° 39' E.*) is the termination of a high spur projecting about three-quarters of a mile west-north-westward, the coasts of which are generally grey cliffs; there is a red patch at the point, on which, about half-way up, a stone pyramid was constructed in 1888. 15

*Chart 430, Lava bay to Cape Morsetta.*

**Cap Martino**, one mile north-eastward of Pointe Ciuttone, is high cliffs. 20

**Baie de Crovani** is comprised between Cap Martino and Cap de la Morsetta, nearly  $1\frac{1}{4}$  miles to the northward, and is more than one mile deep, with a clear sandy beach at its head, inside which is a small lake. There is anchorage here for coasting vessels with off-shore winds, in about 8 fathoms water. On the south side of the beach is a large shed and an old wharf, and a little to the southward are buildings and chimney of L'Argentelle lead mine and smelting works, now almost abandoned. 25

**Cap de la Morsetta** is high, steep, and rocky; Ilot Morsetta, about a cable south-westward of the cape, is surrounded on the west and south sides by rocks; there is a passage between it and the point: in passing southward of the islet give it a berth of  $1\frac{1}{2}$  cables. There is an islet close to the west side of the cape. 30

*Chart 1131, Island of Corsica.*

**The coast** from Cap de la Morsetta trends northward  $2\frac{3}{4}$  miles to Cap Cavalo, and is very steep cliffs, which rise to an isolated ridge, of which Mont Vigatoggio, the southern summit, is 850 feet high. On a summit, 965 feet high, near the middle of the ridge is Tour Truccia, in ruins. The eastern side of the ridge descends gradually. 35

**Cap Cavalo** rises quickly to the height of 971 feet, the northern summit of the ridge. 40

*General charts 430, 1131, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 50' W.*

**Signal station.**—There is a semaphore, 62 feet high, on Cap Cavalò summit.

**Banc de Cavalò**, about 2 miles north-westward of the cape, is  
 5 rocky, with 22 fathoms water; there is a heavy and dangerous sea  
 over the bank with westerly winds, and to avoid it give the cape a  
 berth of 3 miles. There is a bank with 17 fathoms water about three-  
 quarters of a mile north-westward of the cape.

**Baie de Nichiareto.** — The coast from Cap Cavalò  
 10 (*Lat. 42° 31' N., Long. 8° 41' E.*) trends eastward  $2\frac{1}{4}$  miles to the north  
 point of the small Baie de Nichiareto, when it turns northward 3 miles  
 to Pointe Revellata; it is generally high, with several points and  
 creeks, none of which afford shelter from westerly winds. There is a  
 15 small beach in Baie de Nichiareto, but the rest of the coast is irre-  
 gular and rocky, with islets or rocks in places near it. A rocky shoal  
 with 4 fathoms water lies 3 cables northward of Pointe Bianca,  
 $1\frac{1}{2}$  miles north-eastward from Cap Cavalò.

*Plan, Calvi gulf, on 1126.*

Chapelle de la Madonna della Serra, on the crest of a hill, 709 feet  
 20 high, between Cala Reccisa and Baie de Calvi, is a good mark. Anse  
 de Porto Vecchio is the deepest of the creeks; there is a rock 56 feet  
 high in the entrance.

**Presqu'île de Revellata** extends northward  $1\frac{1}{2}$  miles, and  
 it rises to a ridge, which attains a height of 548 feet about 7 cables  
 25 from Pointe Revellata, its northern extreme; here there is an old  
 lookout house in ruins, on which a black pyramid has been constructed.  
 The spur westward of the summit descends almost vertically to the  
 sea, while that to the eastward slopes more gently.

**Pointe Revellata** has an islet, the summit of which is a  
 30 remarkable pointed rock, close off it. View at page 186.

**LIGHT.**—A light is exhibited, at 289 feet above high water, from  
 a square grey granite tower with basement, 63 feet high, on Pointe  
 Revellata, about  $1\frac{1}{2}$  cables within the outer extreme of the islet off it.

**Life-saving station.**—There is a rocket apparatus at Pointe  
 35 Revellata lighthouse.

**Baie de Revellata** is comprised between Pointe Revellata  
 and Pointe San Francesco (Saint François), about  $1\frac{1}{2}$  miles east-south-  
 eastward; it affords anchorage sheltered from westerly winds, but it  
 is seldom used, as the anchorage off Calvi is more convenient. Anchor  
 40 in 14 fathoms south-eastward of Cala Revellata, which is situated  
 about 3 cables southward of the point; here is the landing place for

*General charts 1131, 1780, 2158a, 449.*

*Plan, Calvi gulf, on 1126. Var. 9° 40' W.*

the lighthouse. There is also a natural landing place in the bight on the southern side of Pointe Ossellucia (Oscellucia).

The south shore of the bay is foul. Fort Muzzello is on a height to the westward of Calvi town. Pointe San Francesco is surmounted by a remarkable escarpment. 5

**GOLFE de CALVI** is comprised between Pointe San Francesco and Pointe Caldano, 2 miles east-north-eastward, and extends southward about one mile. A rocky point projects eastward from the coast-line about 2 cables south-eastward of Pointe San Francesco, and on it is the citadel; it is covered with fig trees. Immediately southward of the town a sand beach commences and extends round the head of the gulf to the mouth of Fiume Secco, when it becomes rocky and a little broken to Pointe Caldano. The land within the beach is low and marshy, and the 5-fathom line is about 3 cables from the beach. It is surrounded by high land, Mont Grosso, 7 miles to the south-eastward, being 6,368 feet high. 10 15

**Lights.**—A light is exhibited, at 97 feet above high water, from a yellow iron shed, 8 feet high, situated at the north-east foot of Calvi citadel. 20

A light is exhibited from a green metal post, 5 feet high, on the jetty head.

**Anchorage.**—The anchorage is south-eastward of the citadel in 7 to 8 fathoms, sand and weeds, good holding ground; it is sheltered from north-west, through south, to east. North-easterly winds are very strong, and northerly winds cause a heavy sea. A rocky bank, with 8 fathoms water, lies about 3 cables eastward of the jetty, and should be avoided. 25

Small vessels anchor farther in and secure to the shore.

**Port.**—The quay of the port is in front of the low town, and large stone steps facilitate landing. A jetty, 228 feet long, extends south-eastward from the citadel, and affords shelter to boats. 30

**Buoys.**—Two mooring buoys have been placed in the port for the use of the mail steamers.

**Calvi.** — There are two towns at Calvi (*Lat. 42° 34' N., Long. 8° 46' E.*), the high town enclosed within the walls of the citadel, contains most of the Government buildings, which are now falling into ruins, and the low town, to the southward, which is progressing slowly. Each has its church; the spire of the low town church is slender, and the belfry of the high town church is a square tower, which rises near the dome at the summit of the citadel. The population is about 2,000. 35 40

*General charts 1131, 1780, 2158a, 449.*

*Plan, Calvi gulf, on 1126. Var. 9° 40' W.*

**Supplies.**—Provisions can be obtained. Water can be procured from two pipes, one in the middle, and the other at the end, of the jetty, on application to the Harbour master.

- 5 **Communication.**—A railway runs from Calvi to Ile Rousse, and thence, viâ Ponte Leccia, where it connects with the line to Ajaccio and Casamozza, to Bastia and Ghionaccia.

**Life-saving station.**—There is a rocket apparatus at Calvi Custom house.

- 10 **Fiume de Ficarelli** flows into the gulf through the beach about  $1\frac{1}{2}$  miles eastward of the town, and Fiume Secco, about 6 cables further north-eastward.

Pietra Mala is a round islet or rock close to the shore, at the eastern end of the beach ; between it and Pointe Caldano the coast is bordered

- 15 by rocks in places.

**Pointe Caldano** is low ; it is surmounted by the ruins of an old tower, of which an angle still exists. Rocks and shoal water extend  $1\frac{1}{2}$  cables off the point.

- 20 The coast from Pointe Caldano to Pointe d'Espagno, one mile to the northward, is not high, but is broken and bordered by rocks.

- Pointe d'Espagno** projects westward, and is low, but its northern part rises a little ; here it is surmounted by an old tower, which appears from a little distance in good condition, while in reality only about half of it remains. Ilot d'Espagno, flat and 49 feet high, lies  
25 close off the point, with some small islets or rocks around ; the water is shoal about one cable westward of the islets, and a detached bank with  $6\frac{1}{2}$  fathoms water lies 2 cables north-westward.

*Plan, Algajola bay and rocks, on 1126.*

- Algajola.**—The coast from Pointe d'Espagno trends eastward  
30  $2\frac{1}{2}$  miles to Pointe San Damiano (*Lat. 42° 37' N., Long. 8° 51' E.*), and is bordered by rocks with but little water ; it is backed by high land. Pointe Sant'Ambrogio is about one mile eastward of Pointe d'Espagno, and midway between, a little inland, are two large rocks, which resemble an elephant in shape. There is a beach at the head  
35 of the small bay eastward of Pointe Sant'Ambrogio. Pointe San Damiano is surmounted by large white rocks. On the east side of Pointe San Damiano is a boat harbour, partially sheltered from northerly winds by a jetty, and on the shore about half a mile east-south-east of the point is Algajola village, with a clean sandy beach  
40 extending about a mile north-eastward from it. The anchorage off the town is open to northerly winds, and is only used by coasting vessels in fine weather. An islet, 6 feet high, with a rock awash northward of it, lies near the northern end of a rocky bank extending

*General charts 1131, 1780, 2158a, 449.*

*Plan, Algajola bay and rocks, on 1126. Var. 9° 40' W.*

about 2 cables from the coast between Pointe San Damiano and Algajola.

**Ecueil de l'Algajola**, one mile north-westward of Pointe San Damiano, is rocky, and about 2 cables in extent. Its highest part is almost awash, and the sea breaks on the shoal with south-westerly winds, well marking it. Between the shoal and Pointe San Damiano there are from 8 to 23 fathoms water. 5

**Beacon.**—An iron beacon, painted red and black in horizontal bands, and surmounted by a ball, 13 feet high, stands on the highest part of the shoal, but it is said to be difficult to distinguish. 10

**Clearing marks.**—Pointe Vallitone in line with the old tower near Pietra lighthouse (Grande Île Rousse) leads between the shoal and the coast. The high town of Calvi open north-westward of Îlot d'Espagno leads north-westward, and Île Rousse jetty lighthouse open northward of Île Sicota leads northward, of the shoal. 15

At night, the shoal is covered by the *red* sector of Pietra light.

**Pointe Varcale**, at the north end of the beach extending from Algajola village, is moderately high white cliffs, and steep-to. The coast thence to Pointe Vallitone, three-quarters of a mile to the northward, is very broken and bordered by a shoal rocky bank. 20

**Pointe Vallitone** (*Lat. 42° 38' N., Long. 8° 53' E.*) is low, rugged, and rocky; rocks extend  $1\frac{1}{2}$  cables northward. La Galère, an isolated rock, awash, lies a quarter of a mile north-eastward, and a rock with 9 fathoms water lies nearly three-quarters of a mile northward from the point, which should be given a wide berth. The rocks, excepting the 9-fathom rock, are covered by the *red* sector of Pietra light. 25

**The coast** eastward of Pointe Vallitone is a series of coves with sandy beaches, separated by rocky land; it rises steeply to the southward. 30

*Plan 1682, Île Rousse.*

**ÎLE ROUSSE.**—Les Îles Rousse, four in number, with several rocks around, lie  $2\frac{1}{2}$  miles eastward of Pointe Vallitone. On the eastern end of Grande Île Rousse (Île de la Pietra), the largest islet, which is  $3\frac{1}{2}$  cables long north-west and south-east, there is an old tower, some ruins, and a battery. 35

Grande Île Rousse is connected by a causeway with Île Sicota, to the southward, and a narrow mole, with two covered openings, connects the latter with the mainland. A high mole extends 200 yards south-eastward from the south-east end of Grande Île Rousse. 40

**Landing** can be effected with off-shore winds at a small slipway on the southern side of Île Sicota.

*General charts 1131, 1780, 2158a, 449.*

*Plan, Ile Rousse, on 1682. Var. 9° 40' W.*

**LIGHTS.**—A light is exhibited, at 180 feet above high water, from a square turret on a building, all grey granite, 33 feet high, situated on the summit of Grande Ile Rousse.

- 5 A light is exhibited, at 38 feet above high water, from a grey granite turret, 21 feet high, on the south-eastern end of the high mole.

- Roche de l'Ile Rousse**, about  $1\frac{1}{2}$  cables north-eastward from the smallest and outer islet, has  $3\frac{1}{2}$  fathoms water. Mont d'Orcica (*Lat. 42° 37' N., Long. 8° 57' E.*), 1,342 feet high (on the eastern side of which is Monticello village), just open eastward of the high mole; bearing 166° true, leads eastward of the rock.

**Banc de Naso**, with 8 fathoms of water, and 13 and 19 fathoms around, lies 6 cables eastward from the same islet.

- The port**, south-eastward of Ile Sicota, and southward of the high mole, is available for small vessels, and sheltered from all winds, but the space is limited, as sandbanks extend off the western shore.

- Buoys.**—A mooring buoy lies about three-quarters of a cable south-eastward of the high mole; it is used for manœuvring the mail steam vessels, and affords no security for mooring. There are two mooring buoys in the port.

**Roches de Puntella**, which dry one foot, extend half a cable off the southern point of the port, and the water is shoal about a cable north-eastward of them.

- Anchorage.**—The mail steam vessels berth alongside the mole, the outer part of which is reserved for them. Other vessels anchor southward of the mole, and haul their sterns to about 30 feet from it, lying head to the south-south-westward. The port is reserved for vessels of moderate size, and large vessels anchor, in about 11 fathoms water, about 2 cables eastward of the mole lighthouse, but must leave should northerly or north-easterly winds set in.

**Signal station.**—There is a semaphore, 466 feet above high water, on an isolated hill, 499 feet high, about half a mile westward of the town.

- Town.**—The town of Ile Rousse is situated southward of the port, and is a place of some importance in the coasting trade. There is a new cathedral in the town, and to the westward of it is Sainte Marie church, with two steeples; Château Piccioni, south-eastward of the cathedral, has two turrets. The country around is rich in various fruits, and olive oil and cedrats are exported. A short mole projects to the eastward from the northern part of the town, but boats cannot easily go alongside on account of rocks at its base, and it is impracticable with easterly winds; on the point to the northward is the citadel, enclosed by an indented wall, in the south-eastern part of

*General charts 1131, 1780, 2158a, 449.*

*Plan, Ile Rousse, on 1682. Var. 9° 40' W.*

which is a clock tower; on both sides of the town is a sandy beach. The population was 1,847 in 1901.

**Supplies** of provisions are varied and abundant. Water can be procured from a fountain on the shore near the inner end of the high mole, or better from a pipe on the small mole near the north end of the town. 5

**Coal.**—There is no coal for sale.

**Communication.**—The town (*Lat. 42° 38' N., Long. 8° 56' E.*) is on the railway between Calvi and Ponte Leccia, the junction with the lines to Bastia, Ghisonnaccia, and Ajaccio. There is telegraphic communication. Steam vessels run to Bastia, Marseille, Nice, and Toulon. 10

**Life-saving station.**—A rocket apparatus is stationed at Ile Rousse Custom house. 15

**The coast** from the town of Ile Rousse trends eastward, and is a beach fringed with rocks for about half a mile; it then rises and forms some small creeks, when it becomes steep to Pointe Saleccia, 1½ miles from the town, on which is an old tower in ruins; rocks and shoal water extend a short distance north-eastward from the point. 20

*Chart 1131, Island of Corsica.*

The coast from Pointe Saleccia trends eastward 3 miles, and then turns northward 2 miles to Pointe de l'Alciolo; it is low, backed by elevated lands, and has two small sandy bays. Eastward of Pointe Saleccia is the old square tower of Tremonti, and a little further eastward is Pointe de Losari (Lozari), within which is the basement of an old round tower. Rivière Regino enters the sea on the east side of Pointe de Lozari, and eastward of it is Cima al Arca, a long green mount. Rivière Ostriconi enters the sea 2 miles southward of Pointe de l'Alciolo, and westward of Marine d'Ostriconi or de Porajola (Porajola), a beach, northward of which are the ruins of Tour Porajola, and a sandy cliff showing a remarkable white patch. The coast between Marine de Porajola and Pointe de l'Alciolo is high reddish cliffs without vegetation. Pointe de l'Alciolo is high, rocky, and projects to the north-west, and a short distance inland is Mont d'Orlando. 25 30 35

On the point is a rock shaped like a sharp beak directed westward, named Croc de l'Alciolo.

The coast from Pointe de l'Alciolo trends north-eastward 3 miles to Port de Malfalco, and becomes gradually lower, presenting a series of bights which do not afford shelter; it is bordered by rocks, and is backed by mountainous land, on the slopes of which are numerous towns and villages. 40

*General charts 1131, 1780, 2158a, 449.*



*Chart 1131, Island of Corsica. Var. 9° 40' W.*

Pointe Solche,  $1\frac{1}{2}$  miles from Pointe de l'Alciolo, projects a little from the coastline.

**Port de Malfalco** (*Lat. 42° 44' N., Long. 9° 7' E.*) is a small inlet extending  $2\frac{1}{4}$  cables southward with from 2 to one fathom water; it affords shelter to fishing boats with off-shore winds. There is a guardhouse on the western entrance point.

**The coast** from Malfalco to Pointe Perallo,  $4\frac{1}{2}$  miles to the eastward, is moderately high and broken; at the heads of several creeks there are beaches of sand where landing is possible, but there is no shelter.

The coast is fringed here and there with rocks to a short distance, especially Pointes de Genibaretta and de Mignale (Mignole); there is a pyramid on Pointe de Genibaretta, and two at de Mignale, one on the western point and the other on a hill 500 feet high inland. Rivière Lenti flows into the sandy bay west of Pointe Perallo, where there is anchorage, with southerly winds, off the beach of Padulella, or Marine de Fecajo (Feccajo). There are some huts at Fecajo near a little creek.

**Banc de Malfalco**, with from 22 to 28 fathoms water, extends about  $4\frac{1}{2}$  miles north-eastward from Malfalco; there is a heavy sea on the bank with westerly winds, when the coast should be given a berth of 4 miles.

**Pointe Perallo (Peraldo)** is very salient, but not high; it is white, and there is a pyramid on it; detached rocks above water, and a rock awash, lie off the point.

**The coast** from Pointe Perallo trends south-eastward 2 miles, to Pointe de la Mortella. Marine de Perallo is a beach, situated between the points, which affords landing.

*Plan, Gulf of St. Florent, on 1083.*

**Pointe de la Mortella**, the west entrance point to Golfe de Saint Florent, is low, rugged, and surrounded by rocks; on a point, about  $1\frac{3}{4}$  cables to the southward, is a tower, in ruins.

**LIGHT.**—A light is exhibited, at 140 feet above high water, from a white masonry turret on a building, 44 feet high, situated on Pointe de la Mortella.

**Life-saving station.**—A rocket apparatus is stationed at Pointe de la Mortella lighthouse.

**Signal station.**—There is a semaphore, 67 feet high, and 262 feet above high water, on Pointe de la Mortella. The station is closed till further notice (1914).

**GOLFE de SAINT FLORENT (San Fiorenzo)**, the entrance to which is between Pointe de la Mortella and Pointe Vec-

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan, Gulf of St. Florent, on 1083. Var. 9° 30' W.*

chiaja, 3 miles to the eastward, extends  $2\frac{1}{2}$  miles to the southward. There is a depth of 30 fathoms in the middle of the entrance, which gradually decreases to the shores. The head of the gulf and part of the eastern shore is sandy, and several streams enter the gulf on both sides, Nebi (Nebbio), the largest, flowing through the sandy beach at the head. This river runs through the deep valley which separates the range of Mont d'Asto from the range which runs north-eastward and northward along the east coast of Corsica. L'Aliso, its principal branch, forms at its mouth at Saint Florent some pestilential swamps which render the country very unhealthy in summer. There are several villages up the valley, of which Oletta with its church steeple is particularly noticeable. Mont d'Asto, 7 miles south-south-westward of Saint Florent, is 5,030 feet high.

**Mortella anchorage**, about 3 cables off the shore from 3 to 5 cables southward of the lighthouse, affords good shelter from south-west winds, in from 11 to 15 fathoms, mud and weed, and good holding ground, but the sea is very heavy even with westerly winds.

**Pointe Cepo**,  $1\frac{1}{4}$  miles south-south-eastward of Pointe de la Mortella, has an old battery on it; shoal water extends  $1\frac{1}{2}$  cables off the point. The shore from Pointe Cepo to Pointe de Fornali (Lat.  $42^{\circ} 41' N.$ , Long.  $9^{\circ} 17' E.$ ), 8 cables south-south-eastward, is bordered by rocks, and should be given a berth of 3 cables.

**Anse de Fornali**, a small inlet accessible to boats, lies on the north side of Pointe de Fornali; a rock awash lies in the middle of the cove, and the depth of water diminishes rapidly to its head,  $1\frac{1}{4}$  cables south-westward, into which a small stream flows.

**Light**.—A light is exhibited, at 46 feet above high water, from a square turret on a building, 35 feet high, and all white, on Pointe de Fornali.

**Rade de Fornali**.—Large vessels anchor, in from 6 to 7 fathoms water, about  $2\frac{1}{2}$  cables south-eastward of Pointe de Fornali lighthouse, sheltered except from northerly winds, which raise a heavy sea, but vessels are able to stay although they roll heavily.

**Telegraph cable beacons**.—Two beacons, painted white and blue in horizontal bands and each surmounted by a white disc, stand on a beach at the head of the gulf, and in line,  $191^{\circ}$  true, mark the direction of a telegraph cable near which anchorage is prohibited.

**La Tegnosa**, a rocky patch partly awash, and about a cable in extent, lies  $2\frac{1}{2}$  cables westward of the town.

**Beacon**.—A black beacon tower, surmounted by a cylinder, 27 feet high, stands on the southern side of the patch. The head of the gulf is shallow.

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan, Gulf of St. Florent, on 1083. Var. 9° 30' W.*

**Saint Florent anchorage.**—Small vessels anchor in from 3 to 3½ fathoms about a cable southward of La Tegnosa beacon, but the holding ground is bad, and the sea heavy with northerly winds.

5 In approaching this anchorage pass westward of La Tegnosa.

**Pilotage.**—There is a pilot station at Saint Florent; its northern limits are Pointe Perallo and Plage de Negro.

Sailing merchant vessels up to 500 tons pay on entry and departure, 15c. per ton; from 500 to 600 tons, 12c. per ton; from 600 to 700 tons, 10c. per ton; from 700 to 800 tons, 9c. per ton; from 800 to 900 tons, 7c. per ton; from 900 to 1,000 tons, 5c. per ton, and for each ton over 1,000 tons, 4c. There are special rates for vessels of war.

**Town.**—The town of Saint Florent (*Lat. 42° 41' N., Long. 9° 18' E.*) is situated on a point one mile east-south-eastward of Pointe de Fornali, and immediately northward of the mouth of L'Aliso.

The citadel, on a little hill north-eastward of the town, is surrounded by bastions.

There is a quay on the south-west side of the town and two small moles extend about 20 yards off it; one serves as a breakwater, and 20 boats go alongside the other.

**Supplies.**—Usually provisions are not abundant, but they could be obtained if notice was given in advance. Water can be procured at the town quays.

**Communication.**—There are roads to Île Rousse, Nonza, and 25 Bastia; there is telegraphic communication.

**Life-saving station.**—A lifeboat is stationed at Saint Florent, and a rocket apparatus at the Custom house.

**The shore** of the gulf is very low immediately northward of Saint Florent, where there is a beach formed by the delta of Ruisseaux de Fiuminale and de Ficajola; northward of the latter stream the white 30 limestone shore rises a little to Pointe Vecchiaja.

**Pointe Vecchiaja**, 2½ miles north-north-eastward of Saint Florent, is steep-to at the distance of a cable; there is a pyramid on it built on the ruins of an old tower.

35 *Chart 1131, Island of Corsica.*

**CAP CORSE or Capo Corso.**—The coast from Saint Florent trends northward 20 miles to Cap Bianco, and is the west coast of the Presqu'île de Cap Corse, which has a breadth of from 5 to 7½ miles. Mont Pigno, 3,642 feet high, is situated about 4½ miles eastward of 40 Saint Florent, and from it a mountainous range, the highest part of which is Mont Stello, 4,282 feet high, trends northward 10 miles to Mont Aluccioni (Alticcione), 3,734 feet high. Thence the range closes

*General charts 1131, 158, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 30' W.*

the west coast and gradually decreases to 1,310 feet in height, ending suddenly in the vertical cliffs of Cap Corse.

**The coast** from Pointe Vecchiaja to Pointe Canelles,  $7\frac{1}{4}$  miles to the northward, is high and broken by sandy beaches, with rocks in places close to it, which are approachable only by small craft in fine weather. 5

**Marine de Farinole**, about  $1\frac{1}{4}$  miles from Pointe Vecchiaja, has a small limestone promontory with a round tower on it, on its north side, near which are some houses. There are some hamlets around the steeple of Farinole, a little inland. The coast rises to the northward of Marine de Farinole, and a little inland is Sommet Jacola, 2,060 feet high, with a pyramid on its highest point and a small pyramid on the west cliff. Marine de Negro, about 2 miles northward of Farinole, is marked by a white tower on the beach. The cliffs northward of Negro are lower; there is a convent in ruins near the coast, of which there remains a large bell tower and a white tomb within it. 10 15

**Nonza village** (*Lat. 42° 48' N., Long. 9° 21' E.*),  $1\frac{1}{2}$  miles northward of Negro, is situated on a steep rock, and there is a large square tower on its north side; there is also a white steeple a little inland. The coast to the northward becomes lower, and the steeple of Ogliastro is visible in a valley. 20

**Marine d'Albo.**—Off Ogliastro valley, in a little cove, the south-eastern point of which is marked by a round tower and a hexagonal tomb, is the beach of Albo. A group of houses and a small chapel are on the south side of the cove. The north side of the cove is higher, and ends in a steep white cliff, which is named Roches d'Albo. There is no shelter in the cove from westerly winds. Rocks extend a short distance off the coast in places. 25 30

**Life-saving station.**—There is a station for affording aid in in case of shipwreck at Albo.

**Pointe Canelles (Cannelle)**,  $1\frac{1}{2}$  miles north-westward of Albo, is the steep termination of a spur from Mont Cuccaro, and there is a pyramid on top of its cliffs. 35

A rock awash lies off the point; Cap Bianco well open westward of Pointe Minervio leads westward of it.

**Mont Cuccaro**, about 2 miles eastward of Pointe Canelles, has a conical summit, 3,058 feet high, and is very conspicuous.

**Pointe de Scala**, about three-quarters of a mile north-eastward of Pointe Canelles, has a detached rock above water off it, with shoal water further seaward. 40

*General charts 1131, 158, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 30' W.*

- Canari** white steeple, with a square tower, a little eastward of Pointe de Scala, is very noticeable. Several villages, none of which bears the name of the parish, according to the custom of Cap Corse, are grouped around it. The coast from Canari is clear to Giotta.

- Anse de Giotta (Giottani).**—The little Baretali valley, which drains the western slopes of Mont Aluccioni, opens to the sea near a fine beach, northward of which are some houses and a chapel; there is also a small landing place. The parish church of Baretali has a square steeple and a pointed doorway.

**The coast** from Giotta trends northward about  $1\frac{1}{2}$  miles, and rises to Pointe Minervio (*Lat. 42° 54' N., Long. 9° 19' E.*).

- Minervio village, about half a mile south-eastward of the point, is visible from seaward; the church steeple is less noticeable than the three mortuary chapels, two of which are covered with glazed tiles.

**Pointe Minervio** rises to a remarkable peak surmounted by a pyramid. A detached pointed rock lies off the point, which is generally very clear and steep.

- Sommet Minervio,  $1\frac{1}{2}$  miles eastward of the point, is a noticeable peak, surmounted by a pyramid, and further east is Sommet Gupietta, on which are the remains of a triangulation mark, and a pyramid a cable south-westward of it.

- The coast** from Pointe Minervio trends north-eastward, and becomes a little lower, and about  $1\frac{1}{2}$  miles from the point is Pino village, in which is Château Piccioni, occupying a high position, and several tombs. Near the coast is an old tower on a low hill above the convent of Pino, of which the bell tower is conspicuous from the northward. The steeple of Pino is in the lower part of the village.

- Life-saving station.**—There is a station for affording assistance in case of shipwreck at Pino.

**Tour de Seneque**,  $1\frac{1}{2}$  miles south-eastward of Pino, and northward of Sommet Rotto, is built on a needle-shaped rock, the unusual steepness of which renders it very noticeable. The convent of Sainte Lucie is situated at the foot of the tower.

- Anse d'Aliso.**—The coast from Pino continues north-eastward one mile and then turns sharply north-westward half a mile, forming Anse d'Aliso, at the head of which is a little beach without shelter. The north shore of the bay is rocky and steep, rising to a rugged ridge.

- Morsiglia.**—The coast, which is high at Pointe d'Aliso, is a series of cliffs for about one mile to the north-eastward, and then becomes much lower in the bight of Morsiglia; it is not clear.

*General charts 158, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 30' W.*

Morsiglia village is on the shore at the head of the bight, and above it, on a little tableland detached from the principal range, is Chapelle de la Madone, and, a little to the southward, that of Sainte Lucie. The steeple of Morsiglia is southward of the village, and to the northward is a white square tower, known locally as Tour de Gasparini. Nearer the coast and towards the north are the two old mills of Morsiglia, and, a little within them, the Couvent de l'Annonciation, with a remarkable front. The coast rises a little north-westward of Morsiglia, but again becomes low towards Centuri. 5 10

*Plan, Centuri, on 1126.*

Marine de Morsiglia extends from the village to Île de Centuri, 1½ miles to the northward, and at its northern end is the small Crique de Morsiglia. On the southern side of the entrance to the creek and about a cable from the coast is a rock above water, and half a cable north-eastward of this rock is a rock with 1½ fathoms water. 15

**Centuri.**—Île de Centuri, 3 miles northward of Pino, and about a cable from the coast, is small, of moderate height, and on its south-western part are the ruins of a tower; the passage between it and the land is encumbered with rocks above and below water. Shoal water, terminating in a rock with 3 feet water, extends nearly 1½ cables northward from the north-western point of the island. 20

The port (*Lat. 42° 58' N., Long. 9° 20' E.*) is a small cove in the middle of the bight northward of the island; the bight is open to the north-west, but the port, though small, shelters vessels of 6 feet and less draught; there is a heavy surf with westerly winds. 25

The entrance to the port is between a small jetty on the southern side and Sèche de la Téja, about 200 feet to the northward, on which is a black iron beacon surmounted by a cylinder. The village is built round the port, and on the north side of the entrance is a tower in ruins. Marcantoni mill is on a height within the village, and further inland is Château Marcantoni, a square building surmounted by a flagstaff. Mont Toricella (Torricella), about 1½ miles eastward of the village, is 1,776 feet high, and surmounted by a pyramid; on the same ridge, a little to the northward, is Chapelle de Sainte Catherine. 30 35

**Anchorage.**—There is temporary anchorage for large vessels with off-shore winds north-westward of the port, in about 10 fathoms, sand, with Marcantoni mill in line with the flagstaff of the castle; the holding ground is not good, and during south-easterly winds violent squalls come down from the mountains; it is necessary to leave when a westerly wind sets in. 40

**Life-saving station.**—A rocket apparatus is stationed at Centuri Custom house.

*General charts 1131, 158, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 30' N.*

**The coast** from Port Centuri trends northward nearly 2 miles to Cap Bianco; it is rocky and steep-to at the distance of half a cable.

- Banc de Centuri** extends north-westward about a mile from  
 5 2 miles north-westward of Ile de Centuri, and has two heads each with 8 fathoms water, and from 20 to 32 fathoms around. There is also a small rocky bank with 9 fathoms water about one mile north-westward from the island. These banks must be avoided in bad weather on account of the heavy sea then over them.

- 10 **Cap Bianco** (*Lat. 43° 0' N., Long. 9° 21' E.*), the north-west extreme of Corsica, derives its name from a white cliff, which contrasts with the dark rocks on the land within it.

- Pointe Corno di Becco.**—Corno di Becco is the local name of a jagged point, shaped like a beak, situated immediately north-eastward of Cap Bianco, and Capo Grosso is the local name of the  
 15 point, Corno di Becco of the charts, on which is the semaphore, one mile north-eastward of the cape.

- Signal station.**—A semaphore, 80 feet high, and 416 feet above the sea, is situated on the summit of Capo Grosso, or Corno di Becco  
 20 of the charts. This is a Lloyd's signal station.

**The coast** from the semaphore trends eastward to Crique de l'Arinetta, and then north-eastward to Pointe Tolare; it is blackish cliffs, the slopes within which have a little wood, and is steep-to.

*Plan, C. Corso road, on 1126.*

- 25 **Pointe Tolare (Tollare)** is the termination of the eastern spur of the range running northward through Presqu'île du Cap Corse; eastward of Pointe Tolare is a point, on which is a tower surmounted by a pyramid. The point with the tower separates two small coves in each of which is a sandy beach, and some houses on the shore; these  
 30 houses are the warehouses of the parish of Ersu, and are uninhabited. There is anchorage northward of the tower, in about 8 fathoms water, sheltered from south-easterly winds; the sea is heavy with south-westerly winds.

- The coast** from the point with the tower trends eastward 1½ miles  
 35 to Pointe de l'Agnello. Landing can be effected on the beach in the cove immediately eastward of the point with the tower; then come two white rocky points, the eastern being Pointe Barcaggio, with a bight, at the head of which is a little valley, between them.

- Barcaggio village, south-eastward of the point, is a few houses  
 40 occupied by fishermen. There is a landing place at the village. A sandy beach extends about half a mile eastward from the village, along the head of the bay between Pointes Barcaggio and Costa. The 3-fathom line is about 2 cables off it, and the 5-fathom line about 4 cables.

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan, C. Corso road, on 1126. Var. 9° 20' W.*

Pointe Costa, at the foot of Mont Campana, which is 576 feet high, is bold. Cala Cimentera, a small bight into which a stream flows, is between the rounded head, surrounded by white cliffs, eastward of Pointe Costa, and Pointe de l'Agnello. 5

**Roche de Costa**,  $1\frac{1}{2}$  cables north-westward of Pointe Costa, is a rocky patch with 2 fathoms water.

**Rade de Cap Corse.**—There is anchorage in from 6 to 8 fathoms, about  $3\frac{1}{2}$  cables north-north-eastward of Pointe Barcaggio, with south-easterly winds; or farther eastward, about  $3\frac{1}{2}$  cables northward of the cliffs at the base of Mont Campana, in from 12 to 14 fathoms, but these anchorages are bad with south-westerly winds, when the sea becomes heavy. 10

**Île de la Giraglia** (*Lat. 43° 2' N., Long. 9° 24' E.*), nearly a mile northward of Pointe Barcaggio, is  $3\frac{1}{2}$  cables long, north-north-west and south-south-east, one cable broad, steep, whitish, and skirted with rocks, one of which, about one cable off its north-west end, is awash. On its highest part, near the north end, where it is 180 feet high, is a light-tower. On its north end is an old square tower, and on its southern point is a small turret. There are landing places, one on each side about the middle of the island. 15 20

**LIGHT.**—A light is exhibited, at 269 feet above high water, from a round tower, with a basement, 85 feet high, on the north end of the island. It is named Cap Corse light.

**Life-saving station.**—A rocket apparatus is stationed at Giraglia lighthouse. 25

**Chenal de la Giraglia** is three-quarters of a mile wide between the island and the cliffs eastward of Pointe Costa, but a rocky bank with  $3\frac{3}{4}$  fathoms water lies 2 cables south-eastward of the island, and Roche de Costa is on the southern side of the channel. There are depths of from 6 to 12 fathoms between the bank and rock, which are  $3\frac{1}{2}$  cables apart. The channel should not be used at night. 30

**Pointe de l'Agnello** is clifty, and on the edge of the cliff is a round tower. A line of blackish rocks extends nearly half a cable north-eastward from the point. 35

*Chart 1131, Island of Corsica.*

**Bank.**—A bank, with general depths of from 36 to 79 fathoms, extends about 19 miles northward from Presqu'île de Cap Corse.

**The coast** to the southward, *see* page 239.

#### SOUTH AND EAST COASTS.

*Chart 429, Cape Feno to Lava bay.*

**The coast** from Pointe Aquila (page 164) trends east-south-eastward nearly 3 miles to Port de Tizzano; it is moderately high,

*General charts 1131, 158, 1780, 2158a, 449.*



*Chart 429, Cape Fenò to Lava bay. Var. 9° 40' W.*

rugged, and skirted by rocks, which extend off about 2 cables in places. Anse de Tivella, about a mile eastward of Pointe Aquila (*Lat. 41° 33' N., Long. 8° 47' E.*) is small, and Cala Longa, about

5 3 cables south-eastward of it, is also small; neither affords shelter.

Pointe de Bercajo, about 7 cables south-eastward from the south entrance point of Cala Longa, projects to the southward, and is shaped like a beak; it is covered with vegetation. Anse de Bercajo, eastward of the point, and Anse de Tromba, about half a mile further eastward,

10 are small, and do not afford any shelter.

**Port de Tizzano**, eastward of Anse de Tromba, and separated from it by a projecting peninsula, near the end of which is an old grey-coloured fort with a flagstaff, is a narrow gut extending northward about half a mile; there are two houses on its eastern side. The

15 port has a depth of  $3\frac{1}{2}$  fathoms in the entrance, and  $1\frac{3}{4}$  fathoms in the middle. The western entrance point is bordered by rocks and shoal water, and a rock with  $3\frac{1}{2}$  fathoms water lies  $2\frac{1}{2}$  cables south-westward from the west extreme of the peninsula.

A small vessel can obtain anchorage, sheltered from north-westerly

20 winds, east-south-eastward of the fort, but there is little room for swinging, and the depths decrease immediately to the northward.

**Baie de l'Avena**, southward of Port de Tizzano, is open westward and affords no shelter. Ruisseau de l'Avena falls into its head, near a beach encumbered with rocks.

25 **The coast** of a peninsula, formed by a spur from Mont Pietra Nera, trends south-westward about one mile from Baie de l'Avena to Pointe Latoniccia; for half a mile northward from the point it is bordered by rocks, terminating in a rock with  $1\frac{3}{4}$  fathoms water, one cable off-shore. Pointe Latoniccia is rugged and surrounded with

30 rocks. View at this page.

**Ilot Latoniccia**, or Botte de Tizzano, about 3 cables southward of Pointe Latoniccia, is about 65 feet high, white, and very steep. There is deep water on its western side, but there are rocks between the point and the islet, and there is a rock with  $2\frac{1}{2}$  fathoms

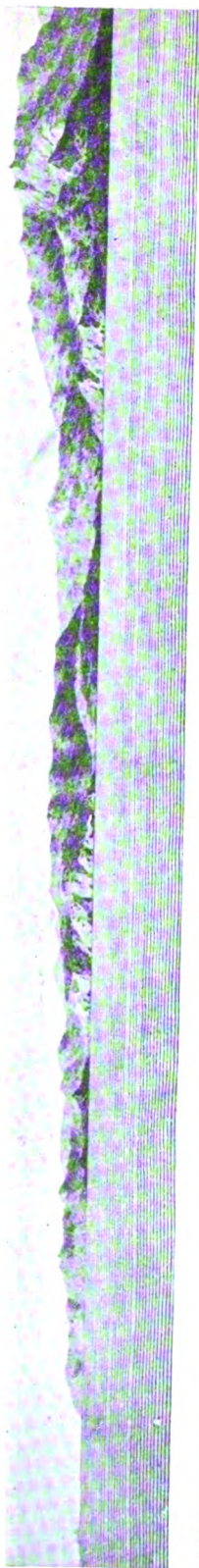
35 water  $2\frac{1}{2}$  cables southward of it.

**Haut-fond de Latoniccia**.—At  $2\frac{1}{2}$  miles southward of Ilot Latoniccia is a rocky bank, about a mile in length east and west and 7 cables in breadth, with 12 fathoms least water; in ordinary weather it is not dangerous to navigation, but with strong westerly winds it

40 must be avoided on account of the eddies which cause a very heavy sea. Between the bank and the land there are from 22 to 44 fathoms, and between it and Les Moines from 26 to 33 fathoms. The houses on the east shore of Port Tizzano open westward of Pointe Latoniccia lead westward of the bank.

*General charts 1131, 1780, 2158a, 449.*

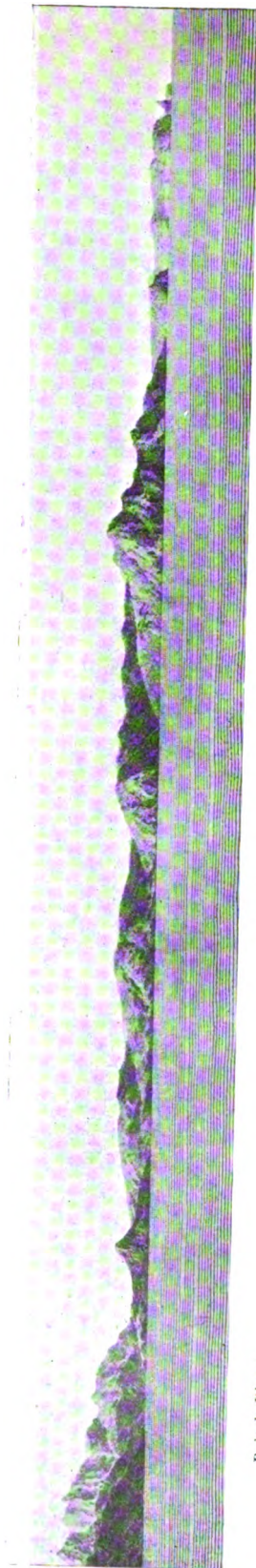
(a)



*Les Moines.  
Pointe Latoniccia.*

*Tour de Roccapina.*

*Tour d'Olmedo.*



*Baie de Figari.*

*Golfe de Ventilegne.*

*Mont de la Trinité, about  
5 miles to the eastward.*

*Corsica, south-west coast.—Pointe Latoniccia to Cap Pertusato.*

*Tour de Bonifacio.*

*Cap Pertusato.*



*Chart 429, Cape Feno to Lara bay. Var. 9° 40' W.*

**The coast** from Pointe Latoniccia trends eastward about  $1\frac{1}{2}$  miles to the northern end of Golfe de Mortoli, and is the southern rocky slopes of the spur from Mont Pietra Nera, which is 646 feet high, and situated nearly 2 miles north-eastward of the point. 5

**Golfe de Mortoli** is situated between Pointe Latoniccia and Pointe Mortoli, about 2 miles east-south-eastward; at its head is a sandy beach, through which Rivière Loreto flows into the sea. Mont Villa, about one mile north-eastward of the head of the bay, is 741 feet high, and conical. The gulf is open westward, but it affords shelter from northerly winds in about 10 fathoms, sand. The 5-fathom line is about a quarter of a mile off the beach at the head. Pointe Mortoli, the south-eastern point of the gulf, is the extreme of a bare promontory, which projects about three-quarters of a mile south-westward from the coastline; rocks extend about a cable off the point. 15

**Golfe de Roccapina** lies between Pointe Mortoli (*Lat. 41° 30' N., Long. 8° 53' E.*) and Pointe Roccapina, nearly 2 miles south-eastward; the north shore trends eastward  $1\frac{1}{4}$  miles from Pointe Mortoli, to the mouth of Rivière de l'Ortolo, and is rugged and skirted with rocks; a rocky patch extends about 4 cables off the shore 7 cables eastward of Pointe Mortoli, and there is no passage inside it. Mont Cauria, three-quarters of a mile northward of the mouth of l'Ortolo, is 905 feet high, and its rocky peak is noticeable. The east shore of the gulf trends southward from the mouth of l'Ortolo, and is a sandy beach nearly to Pointe Roccapina. The north end of the beach rises to a hill, 160 feet high, and westward of it are some houses near the sea. The gulf affords anchorage in from 8 to 11 fathoms, sand, sheltered from northerly and easterly winds. 20 25

**Pointe Roccapina** projects south-westward, and is low; there is an islet a short distance south-westward of it. 30

**Anse de Roccapina**, eastward of the point, extends northward about 4 cables, but it is encumbered with rocks, and suitable for small craft only; at the head of the cove is a beach where landing can be effected. The old Tour de Roccapina, in bad condition, and with a surveying mark in the middle, is on a hill westward of the head of the cove, and about 300 yards north-eastward of it is a tower in ruins, which from the eastward resembles in appearance a lion lying down. View at page 202. 35

**The coast** from Anse de Roccapina trends east-south-eastward  $2\frac{1}{4}$  miles to Pointe d'Olmeto, and is high and rugged, with several small coves, rocky points, and small beaches. Mont de la Petrosa,  $2\frac{1}{4}$  miles east-north-eastward of Anse de Roccapina, is 1,352 feet high, and its bare peaks are yellowish in colour. 40

*General charts 1131, 1780, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 30' W.*

**Les Moines** (Monachi rocks) are principally islets from 16 to 20 feet high, and rocky reefs, forming three groups, which extend south-westward  $1\frac{1}{2}$  miles from about  $1\frac{1}{2}$  miles southward of Pointe Roccapina. The north-eastern group, consisting of about thirty rocks above water, is steep-to, except to the westward; the middle group contains the largest islet, which is about 100 yards in extent, and its pointed summit is 20 feet high; reefs extend about 4 cables south-westward from the islet, and to the north-eastward are three rocks above water on the south-western side of the narrow channel, with 8 fathoms water, which passes between the north-western and middle groups; the south-western group, separated from the middle group by a channel with 11 fathoms water, consists of shoals with from  $1\frac{1}{2}$  to 3 fathoms water.

**LIGHT.**—A light is exhibited, at 80 feet above high water, from a white beacon tower, situated near the south-western extreme of Les Moines.

**Clearing marks.**—Cap Pertusato lighthouse well open southward of Cape de Feno lighthouse,  $108^\circ$  true, leads southward of Les Moines.

At night.—Les Moines are covered by the *red* sector of Pointe Aquila light; to the westward of this sector is a sector of  $2^\circ$  in which the light shows *red* and *white* flashes alternately; keep in the *white flashing* light to the westward of the last sector whilst in the vicinity of Les Moines. Cap Pertusato light well open southward of Cap de Feno light leads southward of Les Moines.

The southern limit of Cap de Feno light passes nearly 3 miles southward of Les Moines.

**Pointe d'Olmeto** is the extreme of a rugged, bold projection, and is skirted with rocks; the land rises, about half a mile to the northward, to a peak 358 feet high. There is a white truncated conical tower on the point. View at page 202.

**Le Prêtre d'Olmeto.**—About half a mile westward of Pointe d'Olmeto is Écueil du Prêtre, the north-eastern of the Écueils d'Olmeto; the highest rock of the shoal is above water.

**Beacon.**—A masonry beacon, 11 feet high, and painted red and black in horizontal bands, stands on the highest rock of Le Prêtre.

A rock, with  $2\frac{1}{4}$  fathoms water, lies about a cable southward of the beacon, and a detached rock, with  $4\frac{3}{4}$  fathoms water,  $2\frac{1}{2}$  cables south-westward of it.

Small vessels can pass between Le Prêtre and the land, but this passage is not recommended.

**Grand Écueil d'Olmeto** (*Lat.  $41^\circ 28'$  N., Long.  $8^\circ 58'$  E.*), about 2 cables south-westward of Le Prêtre, the channel between

*General charts 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 30' W.*

having 12 fathoms water, is a group of shoals extending half a mile south-westward.

Petit Écueil, nearly 4 cables south-westward of Grand Écueil, the channel between having from 16 to 25 fathoms water, is a group of shoals, nearly  $2\frac{1}{2}$  cables in extent, with from 2 to  $2\frac{3}{4}$  fathoms water. The sea breaks on these shoals with the least swell.

The passage between Les Moines and Petit Écueil d'Olmeto offers no difficulty, being  $1\frac{1}{2}$  miles wide; the two north-western rocks of Les Moines can be approached closely, being above water.

**Leading marks.**—The rocky islet off Pointe Roccapina seen exactly midway between Ilot Latonicchia and Pointe Latonicchia,  $296^\circ$  true, leads between Le Prêtre and Grand Écueil d'Olmeto.

The rocky islet off Pointe Roccapina in line with the summit, 620 feet high, half a mile south-westward of Pietra Nera, leads between Grand and Petit Écueil d'Olmeto.

Pietra Nera seen about midway between the col immediately eastward of Pointe Mortoli summit and the rocky islet off Pointe Roccapina leads between Les Moines and Petit Écueil d'Olmeto.

The tower on Pointe d'Olmeto in line with L'Homme de Cagna,  $35^\circ$  true, or, if the mountain is obscured by clouds, the tower in line with Monaccia steeple,  $29^\circ$  true, leads south-eastward of Écueils d'Olmeto.

**The coast** between Pointe d'Olmeto and Pointe Bruzzi, 2 miles south-eastward, is high, rugged, and forms two coves. Anse de Fornello, the western of these coves, immediately eastward of Pointe d'Olmeto, extends northward about 4 cables, and affords shelter to small vessels from northerly winds. The east shore is skirted with rocks, and a detached rock with 3 feet water lies in the entrance about a cable from the east shore and near the fairway. In entering keep on the west shore, and anchor within the detached rock in about  $2\frac{3}{4}$  fathoms (*Lat.  $41^\circ 29' N.$ , Long.  $9^\circ 0' E.$* ).

La Monaccia steeple, on a height 2 miles north-north-eastward of Anse de Fornello, is slender and bluish in colour.

The coast south-eastward of Anse de Fornello is skirted by rocks which extend off nearly  $1\frac{1}{2}$  cables in places. Anse d'Arbitro, three-quarters of a mile south-eastward of Anse de Fornello, is small and rocky; the only anchorage is at the entrance, where there is insufficient shelter even in summer.

**Pointe Bruzzi** is the extreme of a small peninsula about three-quarters of a mile southward from Mont Pozzo, which is 423 feet high and surmounted by a pyramid of stones; half a mile northward of this hill is Mont Milese, 538 feet high, bare, blackish, and rocky.

**Iles de Bruzzi**, a group of small islets and rocks, lie a quarter of a mile off Pointe Bruzzi; rocky foul ground extends 3 cables south-

*General charts 1131, 1780, 676, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 30' W.*

ward and 2 cables westward from the islets, the ground is also foul between the point and the islets.

**Anse de Capinero** extends northward three-quarters of a mile  
 5 between Pointe Bruzzi and Pointe de Figari, about three-quarters of  
 a mile south-eastward; there is a depth of about 20 fathoms in the  
 entrance to the bay and 12 fathoms half-way in; consequently, a  
 heavy sea sets in and renders the bay a bad anchorage. At the head  
 of the bay is a beach, through which two streams flow, and near the  
 10 upper end of the valley of Rivière Valle di Corte, the eastern stream,  
 is Caldarello village, of which the houses and an isolated square steeply  
 are built on a small plateau in the northern part. Sommet de Quieta,  
 a curious hill, 512 feet high, with a pyramid of black stone blocks, is  
 about 6 cables westward of the village. Pianottoli village lies half a  
 15 mile north-eastward of Sommet de Quieta.

**Pointe de Figari** (*Lat. 41° 27' N., Long. 9° 2' E.*) is rugged,  
 and shoal rocky patches extend 3 cables south-westward from it.

**Baie de Figari** extends  $1\frac{3}{4}$  miles north-eastward from between  
 Pointe de Figari and Testa di Gatto, a headland  $1\frac{1}{4}$  miles to the east-  
 20 ward, but it is much encumbered with rocks. View at page 202.

Rochers Saint Jean, about half a mile eastward of Pointe de Figari  
 and  $1\frac{1}{2}$  cables off the north-western shore, are above water and fairly  
 steep-to; a sunken rock lies about 4 cables eastward of the point.

Écueil de Testa di Gatto, off Pointe di Gatto, on the south-eastern  
 25 side of the entrance, is a group of rocks and shoals, the summit of  
 which is almost awash; the sea breaks on the rocks when there is a  
 swell from the westward. Écueil de Figari, three-quarters of a mile  
 northward of Écueil de Testa di Gatto, is a group of rocks, the highest  
 of which is 3 feet high. A rock, nearly awash, lies 3 cables northward  
 30 of Écueil de Figari.

Tour de Figari, half a mile inside the entrance on the north-western  
 shore, is greyish in colour, and built on large granite blocks; it is not  
 conspicuous from seaward. The bay inside the tower becomes very  
 narrow, and the shores are bordered by rocks and shoal water. On  
 35 a hill southward of Caldarello village is a yellowish mortuary chapel,  
 with columns, surmounted by a dome, and called Chapelle Santa.

The channel inside Tour de Figari, with depths over 5 fathoms, has  
 a width of about  $1\frac{1}{2}$  cables, which decreases as the bay is entered.  
 There is anchorage eastward of the tower in 9 fathoms, weeds, and  
 40 good holding ground, sheltered from north-westerly winds, but south-  
 westerly winds send in a heavy sea, and are sometimes accompanied by  
 a high swell. Tour de Figari in line with Chapelle Santa, 9° true,  
 leads into the entrance of the bay.

**Life-saving station.**—A rocket apparatus is stationed at  
 45 Pianottoli Custom house in Baie de Figari.

*General charts 1131, 1780, 676, 2158a, 449.*

*Chart 429, Cape Feno to Lava bay. Var. 9° 30' W.*

**Pointe de Ventilègne** is the southern extreme of the headland of Testa di Gatto, and foul ground extends 3 cables off it; the land rises to Mont Scopeto, a conical hill, 594 feet high, 1½ miles north-eastward. 5

**Golfe de Ventilègne** lies between Pointe de Ventilègne and the north-western slopes of Massif de la Trinité, about 1½ miles south-eastward. View at page 202.

There are three bays in the gulf—Piscio Cane, the western, Ventilègne (proper), the middle, and Stagnolo, the southern; all are open to southerly and westerly winds, but afford anchorage with northerly and easterly winds. 10

Baie de Piscio Cane, eastward of Pointe de Ventilègne, extends northward nearly half a mile, and has depths of from 6½ to 8 fathoms, decreasing towards the head; there are rocks on both sides of the entrance. Rocks extend nearly half a mile south-westward from the eastern entrance point. 15

*Chart 1189, Bonifacio strait.*

Baie de Ventilègne extends about a mile eastward from the eastern entrance point of Baie de Piscio Cane; its entrance is almost completely barred by sunken rocks, and shoal water extends about a quarter of a mile off the southern shore of the bay. 20

**Iles de la Tonnara** are a group of low islets, surrounded by rocks and shoal patches, lying within 4 cables off the south entrance point to Baie de Ventilègne. The largest islet is 79 feet high, and is surmounted by a pyramid of stones. The group terminates northward in a rock with 3 feet water. 25

**Tunny fishery.**—A tunny net is often moored about 3 cables westward from the southern Tonnara islet (*Lat. 41° 25' N., Long. 9° 6' E.*); it is marked by a boat showing a white ball by day, and a red and a green light, placed horizontally, at night. 30

**Port de Stagnolo.**—The little Baie de Stagnolo, which is scarcely a port, is divided into two parts by an islet; the water is shoal, and the bay does not afford shelter. Landing can be effected at the head, where the shore is lower than elsewhere, near the mouth of a stream. 35

**The coast** from Port de Stagnolo trends south-westward and southward 1½ miles to the north-west entrance point of Anse Grande; it is rocky and steep, and rises to Mont de la Trinité, the slopes being wooded, with rocks. 40

**Anse Grande** extends about a quarter of a mile north-eastward, and has depths of about 2 fathoms. A spit, with 4 feet water, projects 1½ cables south-westward from the north-west entrance point, and a

*General charts 429, 1131, 161b, 1780, 676, 2158a, 449.*



*Chart 1189, Bonifacio strait. Var. 9° 30' W.*

rock above water lies in the entrance. Shelter might be obtained here from north-westerly winds in a case of urgency, but the anchorage is dangerous with winds from other directions.

- 5 **The coast** from Anse Grande trends south-eastward 3 cables to Cap de Feno.

**Cap de Feno**, about 3 miles southward of Pointe de Ventilègne, is rugged and foul. A spit, with  $1\frac{1}{2}$  fathoms at its outer end, extends  $1\frac{1}{2}$  cables south-westward from it; there are two rocks above water  
10  $1\frac{1}{2}$  cables westward of the cape, and a rock, with  $4\frac{1}{4}$  fathoms water, lies about  $3\frac{3}{4}$  cables,  $223^\circ$  true, from Cap de Feno lighthouse. The cape should be given a wide berth, for with the least swell there is a very inconvenient surf in its locality.

**LIGHT.**—A light is exhibited, at 65 feet above high water, from  
15 a white rectangular masonry tower situated on the point immediately westward of Cap de Feno.

**Life-saving station.**—A rocket apparatus is stationed at Cap de Feno lighthouse.

**Monts de la Trinité**, a remarkable range of hills, extend  
20 north-eastward about  $2\frac{1}{2}$  miles from Cap de Feno to Mont Corbo, 791 feet high. Mont de la Trinité,  $1\frac{1}{4}$  miles from the cape, is 751 feet high, and the peak of La Croix, a quarter of a mile eastward of it, is 719 feet high. View on chart 1189 and at pages 202, 210.

**The coast** from Cap de Feno trends east-north-eastward,  
25  $1\frac{7}{10}$  miles, to the head of Anse de Paragnano, and sunken rocks lie about  $1\frac{1}{2}$  cables off it in places. Anse de Paragnano is about 4 cables deep, from 2 to one cable wide, and the depth decreases from 12 fathoms in the entrance; it is open westward. At the head of the  
30 anse, the coast, which to the westward is granite, becomes limestone. The coast from the southern point of Anse de Paragnano trends east-south-eastward nearly one mile to the little Presqu'île de la Madonetta; it is limestone cliffs, the western part being 69 feet and the eastern part 148 feet high. A cove, situated 3 cables eastward  
35 of Anse de Paragnano, is shoal; the two flots Fazzuolo, 59 feet high, lie in the entrance.

**LIGHT.**—A light is exhibited, at 98 feet above high water, from a red square tower, over a house, 40 feet high, on the southern extreme of the cliff of Presqu'île de la Madonetta (*Lat.  $41^\circ 23' N.$ , Long.  $9^\circ 9' E.$* ).

**Port Bonifacio approach.** — **Submarine vessels exercising.**—**Fairway reserved for navigation.**—When  
40 the flag, upper half red, lower half yellow, indicating that submarine vessels are exercising submerged, is hoisted by the signal stations or the escorting vessel, all vessels entering or leaving Port Bonifacio must

*General charts 429, 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 1189, Bonifacio strait. Var. 9° 20' W'.*

use the fairway in which submarine vessels are prohibited from exercising submerged, limited thus: On the north-west, by the alignment, 63° true, of Catena old battery and the cliffs on the western side of the entrance to the port; on the south-east, by the alignment, 53° true, of Catena old battery and the cliffs on the eastern side of the entrance to the port; and on the south-west by a line from Cap de Feno to Cap Pertusato (*Lat. 41° 22' N., Long. 9° 11' E.*).

*Plan, Port Bonifacio, on 1126.*

**PORT BONIFACIO.**—The entrance to Port Bonifacio, between Presqu'île de Madonetta, on the west, and Pointe Saint Antoine, on the east, is about  $1\frac{1}{2}$  cables wide, with depths of from 11 to 17 fathoms; it is difficult to distinguish from a distance, but it is marked by the lighthouse of La Madonetta, and large hollows in the white cliffs, which appear as black triangular spots, behind it on the west, and the town and citadel on the east.

About 2 cables inside the entrance the port turns eastward 8 cables, and its width decreases to about half a cable; there are general depths of from 6 to 11 fathoms, but above the town it shoals to  $4\frac{1}{2}$  fathoms about a cable from the head. On the northern side, which is steep and bold, are two creeks; Calanque de l'Arenella, the western one, is very shoal, but Calanque de la Catena, the other, extends about  $1\frac{1}{2}$  cables northward, with depths 8 to 5 fathoms to about half-way within; a floating dock is moored here.

An area at the head of the port has been dredged to 20 feet; a torpedo station is established here, and walls have been built round it, from which five wooden piers extend. There are three quays; the outer one on the southern side is about 60 yards long, and vessels of 12 feet draught can lie alongside; the one on the northern side is 90 yards long, but vessels cannot lie within 30 feet of it; the inner quay on the south side cannot be approached nearer than 40 feet; on this quay is a fountain and the Custom house. The Port office is a little eastward of the outer southern quay. Along both shores are bollards for mooring vessels.

**Buoys.**—Four mooring buoys are placed on the northern side of the port, two on each side of Calanque de l'Arenella. A warping buoy lies in the entrance to Calanque de la Catena.

**Directions.**—Caution is necessary in entering during strong south-westerly winds, as inside the entrance the sea is nearly smooth, but the squalls are very violent. Vessels using the mooring buoys anchor in mid-channel, and secure their sterns to the buoys, leaving the southern side of the channel clear for navigation; those over 150 feet long proceeding above Calanque de la Catena must swing southward of the calanque, where there is room to turn a vessel from

*General charts 1189, 1131, 161b, 1780, 676, 2158a, 449.*

*Plan, Port Bonifacio, on 1126. Var. 9° 20' W.*

200 to 260 feet long, and go up the inner part of the port stern first.

**Sea level.**—A rise and fall of water, often from 2 to 3 feet, and sometimes 4 feet, occurs in Port Bonifacio at irregular intervals; during winter the rise is still greater. Local authorities state that the weather can be forecasted by the rise and fall—a rise indicating an easterly current in the strait preceding westerly winds, which will follow in a few, some five, hours; and a fall during fine weather indicating a westerly current preceding easterly winds; the force of the winds being estimated by the amount of the rise or fall. The water commencing to fall while a strong westerly wind is blowing indicates that the wind will subside in a few hours, and, if the fall continues, that easterly winds will follow.

**Bonifacio town** is situated on the summit and eastern part of the peninsula (*Lat. 41° 23' N., Long. 9° 9' E.*), which forms the southern side of the port; it is grouped round the church of Sainte Marie Majeure, which has a square steeple surmounted by a small dome; its eastern side is limited by the white wall of the fortifications, and the southern side is on the edge of the cliffs. Westward of the southern part of the town is the large round Tour de Bonifacio, from which the steps of Roi d'Aragon descend vertically down the cliff to the sea. A little north-westward of the tower is the octagonal steeple of Saint Dominique, and barracks with a central clock tower; further westward is an iron windmill, and near the citadel at the extreme of the peninsula is the low conical spire of Saint François. The population was 3,663 in 1911.

**Supplies.**—Provisions are scarce, and only moderate in quality. Water can be obtained from the fountain on the quay, but the delivery is restricted. There is no coal.

**Dock.**—See Appendix I.

**Communication.**—There are motor-car services between Bonifacio and Ajaccio, and also between Bonifacio and Ghisonaccia daily.

**Life-saving station.**—A lifeboat is stationed in the port, and a rocket apparatus at the Custom house.

*Chart 1189, Bonifacio strait.*

**The coast** from the eastern entrance point to Port Bonifacio trends eastward nearly three-quarters of a mile and then turns southward  $1\frac{3}{10}$  miles to Cap Pertusato, forming a curve; it is steep, high, white limestone cliffs, and must not be approached to less than 2 cables, the base of the cliffs being encumbered by blocks detached from them by the sea; at the town of Bonifacio the cliffs overhang.

**Cap Pertusato**, the southern extremity of Corsica, rises to a summit having the shape of a sailor's hat; the white cliff is hollowed,

*General charts 1131, 161b, 1780, 676, 2158a, 449.*



(a)

*Croix de la Trinité.*

*Bonifacio.*

*Capo Pertusato lighthouse.  
bearing 62° true, distant 8 miles.*



(b)

*Ile Carallo.*

*Ile Lavezzi.  
Lighthouse.*

*Écuel de Lavezzi  
light beacon.*

*Isola Razzoli  
lighthouse.*



(c)

*Isla Spari.  
Isolino Spariolo  
(in front).*

*Punta Falcone.*

*Capo Testa  
lighthouse bearing 127° true,  
distant 6½ miles.*

*Bonifacio strait from the westward.*



*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

and the opening through it resembles the arch of a bridge. Views at pages 202, 210, and on chart 1189.

**Ilot Saint Antoine**, southward of, and nearly connected, to the cape, is a white pinnacle rock, 75 feet high, on which is a little chapel. 5

**LIGHT**—A light is exhibited, at 325 feet above high water, from a square grey granite tower on a basement, 62 feet high, near the edge of the cliff about 2 cables eastward of Cap Pertusato.

**Signal station.**—There is a semaphore station, 63 feet high, and 348 feet above high water, on the edge of the cliff half a mile north-westward of the lighthouse. This is a Lloyd's signal station. 10

**The coast** from Cap Pertusato trends eastward  $1\frac{3}{4}$  miles to Pointe Sprono, and is steep cliffs, which must not be approached within 2 cables; a good rule is not to go northward of the parallel of Le Prêtre beacon. 15

**Cala Labra**, about 3 cables eastward of the lighthouse, is small; there is an abundant spring of water here. A footpath leads up the cliff to the lighthouse.

**Anse Fiumara**, the shores of which are very broken, is half a mile eastward of Cap Pertusato lighthouse; landing can be effected at its head. A detached shoal with  $2\frac{1}{2}$  fathoms water, and depths of 12 fathoms immediately seaward of it, lies southward of the west entrance point. 20

**Telegraph cable.—Beacons.**—A telegraph cable is landed at the head of Anse Fiumara, where two beacons, painted blue and white in horizontal bands, and surmounted by white discs, in line, bearing  $57^\circ$  true, indicate its direction. Anchorage is prohibited near the alignment of the beacons. 25

**Le Prêtre.—Beacon.**—About 6 cables eastward of the eastern entrance point of Anse Fiumara and  $2\frac{1}{2}$  cables off-shore is the small *Écueil du Prêtre*, on which the sea breaks with westerly winds. An iron beacon surmounted by a ball, 20 feet high, and painted red and black, stands on the shoal. The shoal is covered by the green sector of Pointe Becchi (Ile Lavezzi) light. 30 35

**Pointe Sprono.—Beacon.**—Pointe Sprono (*Lat.  $41^\circ 22'$  N., Long.  $9^\circ 13'$  E.*), the extreme of a narrow tongue of land projecting southward, is clifty. On the point is a masonry wall beacon, painted black towards Passage de la Piantarella, and white on the opposite

*General charts 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

side. It serves, with the beacon on *Ile Piana*, as a leading mark for *Passage de la Piantarella*.

- Ile Piana.—Beacon.**—*Ile Piana*, situated about 4 cables  
5 north-eastward of *Pointe Sprono*, is low, almost flat, whitish in colour,  
and covered with poor vegetation. On its north-eastern side is a  
square wall, painted black towards *Passage de la Piantarella* and white  
on the opposite side.

- Rocks and shoals extend about 2 cables southward of the island,  
10 **Rocher la Vachetta**, the southern rock above water, being situated  
eastward of *Pointe Sprono*. Shoals extend nearly half a mile north-  
eastward of the island, but leave between them and the island a small  
area where vessels of less than 16 feet draught can anchor, sheltered  
from all winds.

- 15 **Ile Ratino.—Beacon.**—*Ile Ratino*, about half a mile east-  
north-eastward of *Ile Piana*, is about  $2\frac{1}{2}$  cables long east and west, and  
46 feet high at its northern end. It is surrounded by islets and rocks,  
principally on the south side; two of these, situated close together,  
about  $1\frac{1}{2}$  cables westward of the island, are small, and appear like  
20 two buoys. *Tignosa di Ratino*, about  $1\frac{1}{2}$  cables northward of these  
rocks, is an isolated shoal, on which is a black iron post surmounted by  
a cylinder, 18 feet high.

About  $3\frac{1}{2}$  cables north-eastward of *Ile Ratino* is a rock one foot  
high, with shoals between it and the island.

- 25 **Ile Cavallo**, the western extremity of which is 4 cables south-  
ward of *Ile Ratino*, is a mile long east and west, from 49 to 102 feet  
high, irregular in shape, with several coves and projecting points, and,  
with the exception of the east end, surrounded with rocks and shoals.  
Most of the coves are encumbered with rocks, only *Cala di Greco* in  
30 the north, and *Cala di Giunco*, in the south, are accessible to small  
vessels, and afford precarious shelter to such as risk entering them.  
Views at pages 210, 212. The narrow channel between it and *Ratino*  
carries  $4\frac{1}{2}$  fathoms water, but can only be used by small vessels with  
local knowledge.

- 35 **Ile Perduto**, nearly  $1\frac{1}{2}$  miles eastward of *Ile Cavallo*, is low, and  
surmounted by a pyramid. Rocks extend three-quarters of a cable  
northward of the islet, and southward of it is a second islet from  
which a spit extends half a cable south-eastward. Patches of rocks  
and shoal water extend 3 cables north-westward and  $1\frac{1}{2}$  cables south-  
40 westward from the islet. Midway between the islets and *Ile Cavallo*  
there are from 21 to 25 fathoms, and the passage is navigable by a  
vessel of any size.

**Ecueil de Perduto** (*Lat. 41° 22' N., Long. 9° 19' E.*), half a  
mile south-eastward of *Ile Perduto*, is a rock,  $1\frac{1}{2}$  feet high, on

*General charts 1131, 161b, 1780, 676, 2158a, 449.*



(a)

*Capo Figari.  
Isola Tavolara*

*Isola Caprera.*

*Monte Congianus.*

*Isola Maddalena.*



(b)

*Guardia  
Vecchia,  
bearing 190° true.*

*Barettini and Corelli.  
Monte Cane  
(behind).*

*Isola Santa Maria.*

*Isola Razzoli lighthouse.*



(c)

*Ile Lavezzi lighthouse,  
bearing 237° true, distant 10 miles.*

*Ile Cavallo.*

*Capo Pertusato  
lighthouse.*

*Torre di Santa Manza.*

Bonifacio strait from the eastward.





*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

which the sea breaks; between Écueil de Perduto and the islets there are depths of from  $5\frac{1}{2}$  to 14 fathoms.

The green sector of Pointe Becchi light covers these shoals.

**Île Lavezzi** is about three-quarters of a mile southward of Île Cavallo, the space between being encumbered by a continuous bank of rocky islets and rocks. Île Lavezzi is nearly a mile long north and south, 6 cables broad, irregular in shape, and appears a mass of granite blocks heaped together; it is surrounded by rocks and shoals. Views at pages 210, 212, 214. The south-eastern part of the island is a rocky mass, about 4 cables long north and south,  $1\frac{1}{2}$  cables broad, and 90 feet high, connected to the main part of the island by a low isthmus. There is a creek, available for small craft, on each side of the isthmus, and in Cala di Giunco, the southern one, is the landing place for the lighthouse. Pointe Becchi is the southern extreme, and eastward of it are two islets with shoal water outside them; one cable southward of the point is a shoal with  $1\frac{1}{2}$  fathoms water, and one cable further southward a patch with 4 fathoms,  $3\frac{1}{2}$  cables westward of which is a patch with  $3\frac{3}{4}$  fathoms; between these rocks and the shoals northward of Écueil de Lavezzi there are depths of 8 and 9 fathoms. The south-western part of the island is prolonged by two rocky islets, on the southern of which is a granite monument in memory of the crew of the French vessel of war *Sémillante*, which was wrecked on Écueil de Lavezzi in 1855.

**LIGHT.**—A light is exhibited, at 90 feet above high water, from a white square tower, 37 feet high, adjoining a dwelling, on Pointe Becchi (*Lat. 41° 20' N., Long. 9° 15' E.*).

**Life-saving station.**—A rocket apparatus is stationed at the lighthouse.

**Écueil de Lavezzi.—Light-beacon.**—Écueil de Lavezzi, one mile southward of Pointe Becchi, is marked by a tower, painted red and black in horizontal bands, surmounted by a lantern, 54 feet above high water, from which a light is exhibited. View on chart 1189.

A rock, with  $1\frac{1}{2}$  fathoms water, lies close northward of the beacon, and there is a rocky patch, with  $2\frac{3}{4}$  fathoms water,  $1\frac{1}{2}$  cables north-westward of the beacon. A rock, with  $4\frac{1}{4}$  fathoms water, lies  $3\frac{1}{2}$  cables north-eastward of the beacon, and within 3 cables southward from this rock are two rocks, with  $4\frac{1}{2}$  and  $4\frac{1}{4}$  fathoms, respectively. A rocky bank, with from 4 to  $4\frac{3}{4}$  fathoms water, extends 4 cables southward from the beacon.

**Clearing marks.**—Croix de la Trinité open south-westward of Cap Pertusato, 319° true, leads south-westward, and the eastern side of Île Lavezzi in line with the highest part of Île Cavallo, 357° true, leads eastward of the shoals.

*General charts 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

At night.—Écueil de Lavezzi and the detached shoals are covered by the red sectors of Pointe Becchi and Isola Razzoli lights.

**BONIFACIO STRAIT** (Bouches de Bonifacio) (French),  
 5 (Stretto or Bocche di Bonifacio) (Italian), between Corsica and Sardinia, is  $6\frac{1}{2}$  miles wide, and affords many passages and channels between the numerous islands in it. Bocca Grande, the main channel or strait proper, lying between Île Lavezzi and Écueil de Lavezzi, on the north and north-west, and Isola Razzoli, on the south-east, is  
 10 3 miles wide. Views on chart 1189, and at pages 210, 212, 214.

The coast of Sardinia and L'Arcipelago della Maddalena are described in Mediterranean Pilot, Vol. I.

**SOUTH SHORE.—CAPO TESTA.—**  
**LIGHT.**—A light is exhibited, at 220 feet  
 15 above high water, from a white square tower on a dwelling, 76 feet high, situated on Capo Testa (Lat.  $41^{\circ} 15' N.$ , Long.  $9^{\circ} 8' E.$ ), the western point of the southern side of the strait.



Capo Testa lighthouse.

**Signal station.**—There is a semaphore near the lighthouse and  
 20 183 feet above high water. It is a Lloyd's signal station.

*Plan 2157, Maddalena and adjacent islands.*

**Isola Razzoli**, the north-western island of L'Arcipelago della Maddalena, is  $1\frac{1}{2}$  miles long north-west and south-east, 8 cables broad, rocky, and arid. Monte Cappello, near the south-eastern end of the  
 25 island, is 213 feet high. Views at pages 210, 212. The island is accessible only at the head of Cala Lunga, a cove in the west side of the island, where there is a small beach; water can be obtained in abundance from a spring on the north shore of the cove. The island is frequented only by fishing boats.

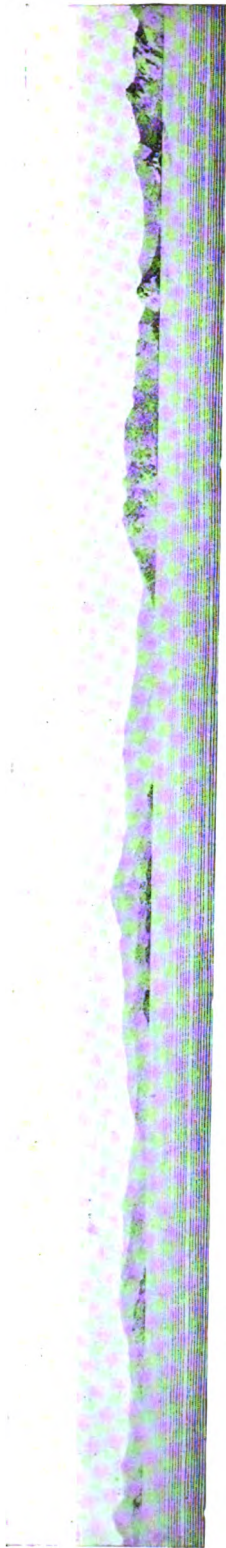
30 North-westward of the island and  $1\frac{1}{2}$  cables from the coast is Scoglio Callot, a large rock above water, and 2 cables further out in the same direction is Secca di Razzoli, small in extent, with  $4\frac{1}{4}$  fathoms water, rock.

**LIGHT.**—A light is exhibited, at 282 feet above high water, from  
 35 a square tower on a house with three stories, 89 feet high, and painted white and black in horizontal stripes, on a ridge one cable within the north-western point of Isola Razzoli.

**Isola Santa Maria.—LIGHT.**—A light is exhibited, at  
 40 49 feet above high water, from a red cylindrical tower with a dome, in front of a building of two stories, on Punta Filetto, the eastern extreme of Isola Santa Maria. The tower is marked "Punta Filetto."

*General charts 1189, 1131, 161b, 1780, 676, 2158a, 449.*

(a)



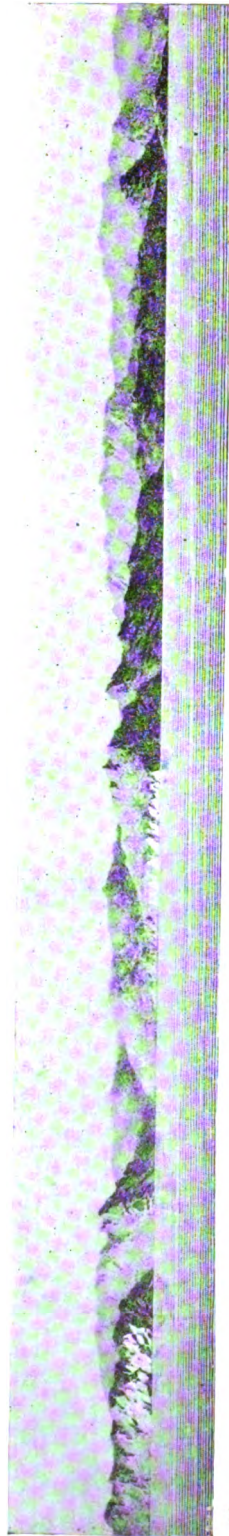
*Sardinia.*

*Ile Lavezzi.*

*Pointe Capricciola.*

*Golfe de Santa Manza.*

*Tour de Sponsaglia, bearing about  
240° true, distant 1½ miles.*



*Calanque del Gionco.*

*Porto Nuoro.*

*Pointe Segno.*

*Golfe de Santa Giulia.*

**Bonifacio strait from the north-eastward.**



*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

**Fisheries.—Territorial limits.—Beacons.—***See* page 35.

**Directions.—West to east.**—Approaching the strait it is generally necessary to steer a little to windward of the direct course to allow for the current. From westward of the entrance there is no apparent opening between the islands, but on approach Bocca Grande opens, and Écueil de Lavezzi beacon becomes visible. Pass one mile southward of Écueil de Lavezzi beacon, and then steer north-eastward through Bocca Grande, giving a sufficient berth to Secca di Razzoli. 5 10

Should the weather show signs of becoming thick, steer for a position one mile northward of Capo Testa (*Lat. 41° 15' N., Long. 9° 8' E.*), and then direct through the strait.

The passage between the shoals southward of Île Lavezzi and those northward of Écueil de Lavezzi, which is 4 cables wide, with a least depth of 8 fathoms, can be taken, but it requires great attention in navigation, and consideration should be given to the weather before entering it, observing also that there is no leading mark through. Isola Razzoli lighthouse bearing 107° true leads through the passage, but passes 2 cables southward of a rock with 3½ fathoms water, and the same distance northward of a rock with 4½ fathoms water. The highest part of Île Cavallo well open eastward of Île Lavezzi leads eastward of the shoals on both sides of the passage. 15 20

Sailing vessels make Cap Pertusato with northerly winds, or Isola Asinara, northward of the north-west point of Sardinia, with southerly winds; in working through, either way, attention must be given to the clearing marks when approaching Écueil de Lavezzi. 25

At night.—From the north-westward bring Isola Razzoli light to bear 85° true, while Pointe Becchi light is well open northward of Écueil de Lavezzi beacon light. Keep Isola Razzoli light bearing 85° true until Pointe Becchi light changes from *red* to *white*, when steer north-eastward out of the strait. 30

From the southward give the western side of Capo Testa a berth of 2 miles to clear the rocks lying off it. Bring Capo Testa light to bear 180° true, distant one mile, and then steer 73° true for Isola Razzoli light until Pointe Becchi light changes from *red* to *white*, bearing 334° true; then steer 40° true out of the strait. 35

**East to west.**—From eastward of the strait, a chain of islands and rocks appears to connect Corsica and Sardinia, but Bocca Grande opens when the south extreme of Île Lavezzi bears southward of 270° true. 40

From the northward the passage between Île Cavallo, and Île Perduto can be taken, or a vessel can pass eastward of Écueil de Perduto. The passage between Île Cavallo and Île Perduto is a mile

*General charts 2157, 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

wide; in approaching it from the northward keep the east side of Ile Lavezzi open eastward of Ile Cavallo to clear the rocks off Ile de Porraggia; pass about 3 or 4 cables eastward of Ile Cavallo and keep  
5 a southerly course till Ile Razzoli lighthouse bears 85° true, when steer to pass about a mile southward of Écueil de Lavezzi light-beacon.

Pass eastward of Écueil de Perduto with Ile Razzoli lighthouse bearing 180° true, and when Pointe Becchi lighthouse bears about 258°  
10 true, steer south-westward through Bocca Grande.

From the southward pass northward of Isole Santa Maria and Razzoli, giving a sufficient berth to Secca di Razzoli, and then pass a mile southward of Écueil de Lavezzi light-beacon.

At night.—From the northward, pass eastward of Écueil de Perduto  
15 (*Lat. 41° 22' N., Long. 9° 19' E.*), with Isola Razzoli light bearing 180° true, and when Pointe Becchi light bears 270° true, steer south-westward, with Capo Testa light bearing 240° true, through the *red* sector of Isola Razzoli light covering Écueil de Lavezzi and the shoals off it, and steer westward, when Isola Razzoli light bears northward  
20 of 90° true.

From the eastward, approach with Pointe Becchi light bearing 270° true, and when northward of Isola Razzoli light steer south-westward through its *red* sector, and westward as above.

**Winds.**—In passing westward through the strait, with a south-  
25 easterly wind, it frequently happens that the wind is north-westerly at the western entrance, and should it become too fresh to work against it, anchorage could be obtained in Rada di Mezzo Schifo; *see* Mediterranean Pilot, Vol. I. In summer the wind is often north-west at the western entrance while it is east in the eastern part of the  
30 strait.

In gales, particularly from the north-west, the sea breaks everywhere in the passages.

**Currents.**—The currents in Bonifacio strait follow the direction of the prevailing wind, and their rate increases or decreases according to its force. The currents precede the wind by some hours, setting  
35 eastward before the commencement of a westerly wind and vice-versâ; from this it will be noticed that there may be a current although there is no wind. *See* also Sea level, page 210.

The currents are rapid in gales, when attention to the helm is  
40 necessary.

**CORSICA.—East coast.**—The coast from Pointe Sprono (page 211) trends north-eastward 4 miles to Pointe Capicciolo, and is skirted by rocks and shoals. Cala Longa, about midway, is small, with shoal water, and off its southern entrance point are two large  
45 rocks.

*General charts 2157, 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

**Rocks.**—A rock, with 5 feet water, lies about 3 cables northward of Tignosa di Ratino beacon, and  $1\frac{1}{2}$  cables south-eastward of the rock is a small patch with  $4\frac{1}{2}$  fathoms water. About half a mile eastward of the rocks off the south point of Cala Longa is a rock with less than 6 feet water, and about  $1\frac{1}{2}$  cables southward of it is a rock with 2 fathoms water. 5

**Les Gavetti**, about a mile north-eastward of Cala Longa, and a quarter of a mile off-shore, are a group of rocks, the highest of which is 13 feet high, extending  $1\frac{1}{2}$  cables north-east and south-west; the western side of the rocks is fairly steep-to, but shoal water extends 4 cables eastward of them, and the sea only breaks on it with north-easterly winds. There is a narrow passage between Les Gavetti and the coast, with  $2\frac{1}{2}$  fathoms water, but it should not be taken except by small craft. 10 15

**Iles Porraggia (Poraggia)** are two islets, situated a little over a mile north-eastward of Ile Ratino, which are close together and extend about a quarter of a mile north-east and south-west; the southern and larger islet is 39 feet high, and on its summit is a heap of stones. A spit extends 4 cables south-westward of the islands, and near its southern end is a rock with 4 feet water. 20

Écueils de Porraggia, about  $2\frac{1}{2}$  cables northward of the islands, are two black rocks above water; the western rock is 3 feet high, and its north-western side is steep-to.

**Passage de la Piantarella** is the channel between Iles Piana and Ratino, and north-westward of Iles Porraggia. 25

Iles Piana and Ratino, *see* page 212. The passage has a least width of about one cable, and a least depth of 6 fathoms, but the leading line passes very close to the patch, with  $4\frac{1}{2}$  fathoms, north-eastward of Tignosa di Ratino beacon. 30

**Directions.**—From the westward, pass southward of Le Prêtre beacon (*Lat.  $41^{\circ} 22' N.$ , Long.  $9^{\circ} 13' E.$* ), and steer eastward until past Rocher la Vachetta, and Tignosa di Ratino beacon is in line with the extreme of the land southward of Pointe Capicciolo; then steer to pass a little westward of Tignosa di Ratino beacon, and when the black wall beacons on Pointe Sprono and Ile Piana are in line,  $229^{\circ}$  true, keep them so astern till Santa Manza tower bears  $319^{\circ}$  true, when the passage will be cleared. 35

The passage is only practicable by day, and it must not be attempted when the leading beacons are obscured. The leading line passes very close to the western rock of Écueils de Porraggia; therefore, do not go to the south-eastward of the line. 40

**Pointe Capicciolo** is the extreme of a peninsula, nearly one mile broad, which extends north-eastward  $2\frac{1}{4}$  miles on the south-eastern

*General charts 1131, 161b, 1780, 676, 2158a, 449.*



*Chart 1189, Bonifacio strait. Var. 9° 20' W.*

side of Golfe de Santa Manza. About a quarter of a mile within the point is a rocky peak, 344 feet high, resembling in shape a bishop's cap. Southward of this peak is a ravine, from which the land again  
 5 rises suddenly to a little hill, 417 feet high, on which is Tour de Santa Manza in ruins; on the foundation is a heap of stones, and near it a masonry pillar.

**Golfe de Santa Manza** extends south-westward about 3 miles from its entrance between Pointe Capicciolo and Presqu'île de Rondinara, 2½ miles to the northward; it is open eastward, but affords  
 10 shelter from other directions. Pointe della Nave, about 1½ miles south-westward of Pointe Capicciolo, has a noticeable white rock off it. Cap Blanc, 7 cables north-north-westward of Pointe della Nave, is a white headland, 151 feet high, a rocky spit extends 4 cables north-  
 15 eastward from it and terminates in a rock with 1½ fathoms water.

The inner part of the gulf extends 1½ miles south-westward from between Pointe della Nave and Cap Blanc, with depths of from 11 to 15 fathoms in the entrance, decreasing to 3½ fathoms near the head; the north shore is bordered by a rocky bank to the distance of one  
 20 cable; Calanque de Stentino, about three-quarters of a mile from Cap Blanc, extends half a mile westward, and is narrow with almost vertical sides; it has 10 feet water at its head, but the entrance has a bar with 5 feet water and many rocks outside it. The head of the gulf is a sand beach, and a rock with 2 feet water lies about 2 cables  
 25 off its southern end; Ilot du Toro open north-westward of the south-eastern shore of the gulf leads north-westward of it.

Water can be procured from wells near the north-western end of the beach, and from the streams, which rarely dry, flowing into the head of the gulf.

30 The shore from Cap Blanc trends north-north-westward one mile to Étang de Balistro; for half a mile from the cape it is a white limestone cliff and thence a sand beach; from Étang de Balistro the shore trends north-eastward 2½ miles to Presqu'île de Rondinara, and is rocky, its slopes, moderately steep, being covered with a little wood.

35 **Anchorage.**—There is anchorage northward of Cap Blanc, near Étang de Balistro, but there is better shelter about 1½ cables off Pointe della Nave (*Lat. 41° 25' N., Long. 9° 14' E.*); a northerly swell is felt here, but the sea does not become very heavy. Small vessels anchor near the head of the gulf, sheltered except from strong north-  
 40 easterly winds.

*Chart 1131, Island of Corsica.*

**Presqu'île de Rondinara** projects about 4 cables south-eastward from the coastline to which it is connected by a low and very narrow sandy isthmus; the peninsula is small, steep, high, with a

*General charts 1131, 161b, 1780, 676, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

rounded summit, and reddish in colour; close eastward of it is an islet, about 20 feet high.

**Port de Rondinara**, on the north side of the peninsula, is a small cove about half a mile deep, with a sandy beach at its head; it is open eastward, and suitable only for small craft. A rocky shoal with 5 feet water, lies near the head of the cove southward of a small round islet. In the middle of the cove there are 8 fathoms, and the water shoals gradually towards the shore.

**The coast** from Port de Rondinara trends northward 2 miles to Pointe Carpicce, the southern entrance point of Baie de Porto Nuovo, and is much broken. Tour de Sponsaglia, on a projecting point, about midway, is a good mark. A rock, with  $2\frac{1}{2}$  fathoms water, lies 3 cables eastward of, and a rocky spit with 5 feet water extends one cable northward from, Point Carpicce.

**Baie de Porto Nuovo**, westward of Pointe Carpicce, is divided near its head by a rocky spur into two small coves. Calanque del Gionco, the eastern, affords the better shelter, and small vessels load with coal here; there are some rocks on its western side. Water can be obtained from a stream flowing into the head of the calanque.

Porto Nuovo (proper), the western cove, has a sandy beach at its head outside a small lagoon, and a few rocks, but the anchorage is open eastward.

There is a depth in the bay northward of the coves of about 9 fathoms, sand, weed, and rock bottom.

**Ilot du Toro**,  $4\frac{1}{4}$  miles eastward of Pointe Carpicce, is 131 feet high and surrounded closely by several bare and steep rocks, the summit of the western of which has the appearance of a finger. The group is steep-to.

**Roche du Toro.—Buoy.**—Roche du Toro, an isolated rock (Lat.  $41^{\circ} 30' N.$ , Long.  $9^{\circ} 24' E.$ ), with  $1\frac{1}{2}$  fathoms water, lies about half a mile eastward of Ilot du Toro, and a black spindle buoy, surmounted by a cylinder, on its south-eastern side.

**The coast** from Porto Nuovo trends north-eastward about  $1\frac{1}{4}$  miles to Pointe Segno, and is high and bold; it should be kept aboard in entering or leaving Porto Nuovo. Violent squalls come down from the hills during westerly winds.

**Montagnes de Cagna** are about 10 miles inland from the coast, and the principal peaks are well defined. L'Homme de Cagna, 3,986 feet high, is the south-western peak, and is rocky and shaped like a mushroom. To the north-eastward are Monts Balori and Ovace, two cones close together, 4,396 feet high, with a rounded dome-shaped peak of similar height, and the vertical rocky sides of Compolelli north-eastward of them.

*General charts 1780, 676, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

The range continues northward, but falls towards the col of Focina, and rises again to Mont Vacca Morla (Morta).

**Pointe Segno** is bold and steep-to, with some white patches at its base.

**Golfe de Santa Giulia**, immediately northward of Pointe Segno, is about half a mile wide and 7 cables deep; it is encumbered with rocks above and below water, and its head is a sandy beach, which encloses a lagoon of brackish water; it is open eastward. There is anchorage off the entrance with off-shore winds in about 9 fathoms.

**The coast** from Golfe de Santa Giulia trends north-eastward about 3 miles to Pointe Cerbicale (*Lat. 41° 34' N., Long. 9° 21' E.*), and is rocky. Pointe d'Aciajo,  $1\frac{1}{2}$  miles from the gulf, is low and surrounded by rocks. The coast between Pointes d'Aciajo and Cerbicale is skirted with rocks, and forms two slight bays with sandy beaches and low marsh land, in the southern and smaller of which is Ilot de la Folaca, with a rock nearly awash close eastward of it. A rock with  $2\frac{3}{4}$  fathoms water lies about 4 cables southward of Pointe d'Aciajo, and a rock with  $2\frac{3}{4}$  fathoms water lies about 6 cables eastward of the point. Pointe de la Chiappa lighthouse in line with Pointe Cerbicale,  $24^{\circ}$  true, leads eastward of these rocks.

There is anchorage, sheltered from northerly and north-easterly winds, off the beach westward of Pointe Cerbicale; the holding ground is good. It is frequented by coasting vessels, and is known as Columbara anchorage.

**Pointe Cerbicale** is rocky, and rocks extend a short distance southward of it. The land within the point rises quickly to Mont Cerchio, 1,066 feet high,  $1\frac{1}{2}$  miles north-westward, and surrounded by a forest; there are some surveying marks on the mount.

**The coast** from Pointe Cerbicale trends north-north-eastward  $2\frac{1}{2}$  miles to Pointe de la Chiappa; it is high, rugged, and bold, broken at intervals by small beaches, with from 8 to 12 fathoms water not far from the rocks. Ilot Farina lies close to the coast, about one mile southward of Pointe de la Chiappa.

**Iles Cerbicale** are a group of five islets; Ile Pietricaggiosa, the southernmost, is situated about 2 miles eastward of Pointe d'Aciajo; from it Ile Piana, Ile Maestro-Maria, and Ile Forana extend  $1\frac{3}{4}$  miles north-eastward. Pietricaggiosa is small and low; a rock with  $2\frac{1}{2}$  fathoms water lies about 3 cables north-westward of it; Piana is about 3 cables long north-east and south-west, 2 cables broad, and 113 feet high; its southern end is steep, and about 2 cables westward of it is a rock with  $1\frac{1}{4}$  fathoms water; Maestro-Maria is small, low, and flat, and about a cable north-westward of it is a detached rock

*General charts 1780, 676, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

awash; Forana is about 3 cables long north and south; its southern part is steep, and its northern part is low and bordered by rocks.

Piana and Maestro-Maria are connected by a rocky ridge, and there is no passage between them; there are passages between this central group and Pietricoggiosa to the south, and Forana to the north, but their navigation requires great caution.

Ilot de la Vacca (*Lat. 41° 33' N., Long. 9° 23' E.*), the fifth islet of the group, lies about 6 cables eastward of the southern point of Forana; it is small, very pointed, and skirted with rocks.

**Roche de la Vacca.—Buoy.**—Roche de la Vacca, 8 cables south-south-eastward of Ilot de la Vacca, is small, and has 2 fathoms water; about 3 cables northward of it is a rock with  $2\frac{1}{2}$  fathoms water.

A black spindle buoy, surmounted by a cylinder, lies a little eastward of the middle of a line joining the two rocks.

Between Roche du Toro and these rocks there are depths of from 10 to 39 fathoms.

**Canal des Cerbicales. — Directions.** — The channel between Îles Cerbicales and the coast is navigable without difficulty by day. From the southward, when off Golfe de Santa Giulia bring Pointe de la Chiappa lighthouse in line with Pointe Cerbicale, which leads between the rocks off Pointe d'Aciajo and the rock off Île Pietricoggiosa; give Pointe Cerbicale a berth of about 3 cables, and keep nearer the coast than the islands.

*Plan, Gulf of Porto Vecchio, on 1126.*

**Pointe de la Chiappa** is the north-eastern extreme of a hill, which is separated from Mont Cerchio, nearly 3 miles south-westward of the point, by a valley.

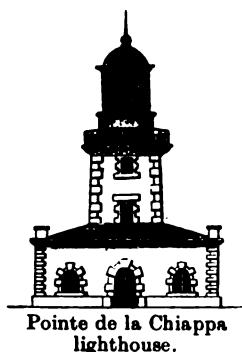
**LIGHT.** — A light is exhibited, at 217 feet above high water, from a white square tower with a grey granite basement, 52 feet high, situated about  $2\frac{1}{4}$  cables from Pointe de la Chiappa.

**Signal station.** — There is a semaphore, 96 feet high and 274 feet above high water,  $1\frac{1}{4}$  cables westward of Pointe de la Chiappa lighthouse.

**Life-saving station.** — A rocket apparatus is stationed at the lighthouse.

**GOLFE de PORTO VECCHIO**, the entrance to which is between Pointe de la Chiappa and Pointe de Saint Cyprien

*General charts 1131, 1780, 676, 2158a, 449.*



*Plan, Gulf of Porto Vecchio, on 1126. Var. 9° 20' W.*

(*Lat. 41° 37' N., Long. 9° 22' E.*), 1½ miles north-north-westward, extends 4 miles westward and southward, with several indentations. The inner part of the gulf is somewhat shallow for vessels of heavy draught and obstructed by shoals, but it is landlocked and sheltered, and can be entered by vessels of moderate draught.

**Depths.**—There are depths of from 9 to 17 fathoms in the approaches to the gulf; 5 to 10 fathoms in the outer anchorage; 2½ to 4 fathoms in the inner anchorage; and 10 feet in the southern approach to the town.

**Le Chiapino**, a small patch of rocks, lies about 1½ cables north-eastward of *Pointe de la Chiappa*; there is a depth of 5½ fathoms between the point and the patch.

**Beacon.**—A masonry beacon, painted red and black in horizontal bands and surmounted by a ball, 40 feet high, stands on *Le Chiapino*.

**La Pecorella**, 9 cables northward of *Pointe de la Chiappa*, and 7 cables east-south-eastward of *Pointe de Saint Cyprien*, is a rocky patch, many heads of which are above water, extending nearly 2 cables north and south, and a rock, with 1½ fathoms water, nearly a cable to the eastward.

*La Pecorella* is covered by the *red* sector of *Pointe de la Chiappa* light, and by the outer *red* sector of *Pointe de Saint Cyprien* light.

**Beacon.**—A masonry beacon, painted red and black in horizontal bands and surmounted by a ball, 35 feet high, stands on the southern rock, above water, of *La Pecorella*.

**The southern shore** of the gulf from *Pointe de la Chiappa* trends westward 1½ miles to *Anse d'Argli*; a cliff runs half a mile westward from the point to a small pebble beach, where there is a landing place for the lighthouse; it is then broken and rocky to *Anse d'Argli*, where there is a beach.

The shore from *Anse d'Argli* trends north-westward half a mile to *Pointe Urca*, and it rises steeply to hills about 300 feet high, which are generally covered with woods, but are cultivated in places. *Pointe d'Arena* lies 7 cables westward of *Pointe Urca*; *Anse de Vizza*, on the west side of *Pointe Urca* peninsula, is small, and there is a beach at its head; thence to *Pointe d'Arena* it is rocky, but a sand-spit extends 160 yards off the point.

The shore from *Pointe d'Arena* turns south-westward 1½ miles to the mouth of *Rivière Stabiaccio*, and thence west-north-westward three-quarters of a mile to *Porto Vecchio* town. *Ilot Ziglione*, a cable off-shore, nearly a mile south-westward of *Pointe d'Arena*, is shaped like a sugar-loaf, and is wooded.

*General charts 1131, 1780, 676, 2158a, 449.*

*Plan, Gulf of Porto Vecchio, on 1126. Var. 9° 20' W.*

**North shore.**—**Pointe de Saint Cyprien**, or *Pointe de Giovan-Lungo*, is the south-eastern extreme of a peninsula, about 7 cables in extent, and 213 feet high, north-westward of which are Oso marshes; the point is clifty, and a rocky spit extends  $2\frac{1}{2}$  cables south-westward from it. 5

**LIGHT.**—A light is exhibited, at 80 feet above high water, from a white square tower, 41 feet high, with a grey granite house adjoining, on *Pointe de Saint Cyprien*. The lighthouse has the appearance of a chapel. 10

**The shore** from *Pointe de Saint Cyprien* trends westward  $1\frac{1}{4}$  miles to *Pointe de Benedetto*. Westward of *Pointe de Saint Cyprien* is a little shoal bay, and half a mile further westward is *Anse de Timbro le Machie*, a shallow bay, the north-eastern shore of which is reddish rocks; the north-western shore, low and marshy, terminates southward in *Pointe de Benedetto*, which is the south-eastern extreme of an isolated little hilly peninsula, 148 feet high, on the southern side of Oso marshes. 15

**Banc de Benedetto** extends about  $3\frac{1}{2}$  cables southward of the peninsula; the water is shoal northward of a line from *Pointe de Saint Cyprien* to the south extreme of the bank. The bank is covered by the inner red sector of *Saint Cyprien light*. 20

**Buoy.**—A red spindle buoy, surmounted by a cone, is moored in  $3\frac{1}{4}$  fathoms on the southern edge of the bank.

**Baie de Stagnolo**, westward of *Presqu'île de Benedetto*, extends three-quarters of a mile northward with a greatest depth of  $2\frac{3}{4}$  fathoms. There is a large patch of rocks above water in the middle of the bay; rocks extend westward of *Presqu'île de Benedetto*, and an isolated rock with 6 feet water lies outside the bay. 25

**The shore** from the western entrance point of *Baie de Stagnolo* (*Lat. 41° 37' N., Long. 9° 19' E.*) trends south-westward nearly  $1\frac{1}{2}$  miles to *Pointe des Salines*, on the southern side of which is a little shoal bay, with *Château de Georges-ville*, white and surrounded by trees on its north-western shore; the head of the gulf, to the southward of this bay and about 4 cables off the town of *Porto Vecchio*, is encumbered with rocks. 30 35

**Beacons.**—*Tourelle de Cioccia*, of black masonry, and surmounted by a cylinder, 11 feet high, stands on the northern side of *Écueil de Cioccia*, a bank of rocks nearly awash, 3 cables eastward of the town quay. Three red masonry beacons, each surmounted by a cone, mark the northern channel to the quay. 40

**Directions.**—From the southward by day pass midway between *Le Chiapino* and *La Pecorella* beacons, the channel being  $6\frac{1}{2}$  cables

*General charts 1131, 1780, 676, 2158a, 449.*

*Plan, Gulf of Porto Vecchio, on 1126. Var. 9° 20' W.*

wide, steering for a little northward of Pointe d'Arena, and anchor northward of the promontory on the east side of Anse de Vizza. The wrecks shown on the plan must be avoided.

- 5 From the northward by day pass midway between Pointe de Saint Cyprien and La Pecorella beacon, with Mont Cerchio in line with the west end of the beach in Anse d'Argi, 220° true; keep this mark on until Saint Cyprien lighthouse bears 0° true, distant 5 cables, when steer westward to the anchorage.

- 10 To proceed to the inner anchorage, pass one cable southward of Banc de Benedetto buoy, give Pointe d'Arena a berth of about 2 cables, then pass Pointe Varra, the next point to the southward, at a distance of three-quarters of a cable, and steer to the anchorage.

- At night.—From the southward, approach with Saint Cyprien *white* light bearing about 310° true until through the *red* sector of Chiappa light; then steer westward to the anchorage, northward of the promontory eastward of Anse de Vizza.

- From the northward, approach with Saint Cyprien *white* light bearing 245° true, when through the *red* sector of Chiappa light steer 209° true until Saint Cyprien light bears 337° true, when steer westward to the anchorage.

- For the inner anchorage, approach Pointe d'Arena (*Lat. 41° 36' N., Long. 9° 19' E.*), with Saint Cyprien light bearing 69° true, avoiding Banc de Benedetto buoy, and not getting into the *red* sector of Saint Cyprien light; when past Pointe d'Arena, the white sand of which generally shows clearly, steer to pass nearly a cable off Pointe Varra, and then steer to the anchorage, with Pointe d'Arena, if it can be seen, in line with Saint Cyprien light.

- Anchorage.**—Large vessels, generally, should anchor in the gulf eastward of a line drawn 0° true from Anse de Vizza, in from 5½ to 10 fathoms water, sand and weeds bottom. The anchorage is good, though open eastward, and easterly winds send in a considerable swell, but the sea is said not to become very heavy.

- Vessels of less than 17 feet draught can enter the inner basin of the gulf, and anchor in from 3½ to 4 fathoms about 3 cables northward of Ilot Ziglione, with Saint Cyprien lighthouse in line with Pointe d'Arena; here, the bottom is mud and weeds, good holding ground, and the position is completely sheltered, but westerly winds are sometimes very violent and prevent communication with the shore.

- 40 **Approach to town.**—There are two channels suitable for small vessels; the southern one, with 10 feet water, passes northward of Tourelle de Cioccia, and southward of the shoals extending eastward from Ilot Ficaja, which is situated 1½ cables north-eastward of the quay.

*General charts 1131, 1780, 676, 2158a, 449.*

*Plan, Gulf of Porto Vecchio, on 1126. Var. 9° 20' W.*

The northern channel is more intricate, and has less water; it is marked by three red beacons, which are left to the westward. Local knowledge is required for these channels.

**Porto Vecchio town** is situated on a hill at the head of the gulf westward of the entrance to Rivière Stabiaccio, and is surrounded by walls. South-eastward of the town is a stone quay, 280 yards long, with a small landing jetty. 5

Northward of the quay is a road with several buildings along it; the Custom house is the furthest from the quay. The town is considered unhealthy in summer, when most of the population goes to the uplands of Quenza. 10

**Supplies.**—Provisions are abundant from October to June, but are difficult to obtain in summer, owing to the absence of the inhabitants. Water can be procured from a fountain on the quay, near the landing jetty. 15

**Life-saving station.**—A rocket apparatus is stationed at the Custom house.

**Golfe de Saint Cyprien.**—The coast from Pointe de Saint Cyprien trends north-north-westward 6 cables to a point, and is bordered by a shoal bank, on which are several islets and rocks, to a distance of 2 cables. Golfe de Saint Cyprien lies between the point just mentioned and Pointe d'Araso (*Lat. 41° 38' N., Long. 9° 22' E.*), 8 cables north-eastward, and extends 7 cables north-westward. Ilot Cornuta, reddish in colour, lies  $2\frac{1}{2}$  cables southward of Pointe d'Araso, and  $2\frac{1}{2}$  cables westward of the islet is Ile Saint Cyprien, about  $1\frac{1}{4}$  cables in extent, and 76 feet high, with a round summit. The entrance to the gulf, between Ile Saint Cyprien and the rocks off the point to the south-westward, is about 3 cables wide, with depths of from 4 to  $4\frac{3}{4}$  fathoms, which decrease in the gulf. In the inner part of the gulf are two rocks, one of which is 3 feet high, and two sunken rocks. The head of the gulf is a low and marshy beach. 20 25 30

Small vessels enter the gulf southward of Ile Saint Cyprien, and anchor westward of it in from  $2\frac{1}{2}$  to  $3\frac{1}{4}$  fathoms; there is also a passage between Ilot Cornuta and Ile Saint Cyprien, but it should not be used. 35

The anchorage is sheltered from winds between west, through north, and north-east, but the holding ground is not good.

**Pointe d'Araso** is the south-east extreme of a small promontory, 168 feet high, with low ground north-westward of it; a bank, with about  $1\frac{1}{4}$  fathoms water, extends  $1\frac{1}{4}$  cables south-eastward from the point. 40

**La Capicciola**, about 8 cables north-eastward of Pointe d'Araso, is a narrow, low tongue of land projecting 3 cables south-eastward

*General charts 1131, 1789, 676, 3758a, 449.*



*Plan, Gulf of Porto Vecchio, on 1126. Var. 9° 20' W.*

from the coastline; it is red in colour, and there is an islet close eastward of its extreme. The point should be given a good berth.

*Plan, Pinarello bay, on 1126.*

- 5 **Golfe de Pinarello.**—The coast from La Cappiciola trends northward, and is clear,  $1\frac{1}{2}$  miles to a point, from 200 to 230 feet high, close off which is Île de Pinarello, about 3 cables in extent, rugged, and of moderate elevation; on the island is a large square tower, but it is falling into ruins. Golfe de Pinarello, the entrance to  
10 which is between Île de Pinarello and Pointe Presca Giocana,  $1\frac{1}{4}$  miles to the northward, extends  $1\frac{1}{4}$  miles westward. In the entrance and 6 cables southward of Pointe Presca Giocana are Rochers de la Roscana, a group of red rocks with whitish summits, the highest of which is 66 feet high, and bordered by low rocks on its northern side.

- 15 A rock awash lies 80 yards westward of the highest rock, and a rock with  $3\frac{1}{2}$  fathoms water about the same distance to the eastward. The passage between Île de Pinarello and Rochers de la Roscana is 6 cables wide, with from 7 to 12 fathoms water, and that between the rocks and the north shore of the gulf 4 cables wide, with from  
20  $3\frac{3}{4}$  to 7 fathoms. The southern part of the bay has depths of from 10 to 6 fathoms, shoaling within 3 cables from the beach, and the northern part has depths of from 5 to  $3\frac{1}{2}$  fathoms.

- The north shore of the gulf is bordered by rocks, some above water, and amongst them is a dry rock  $2\frac{1}{2}$  cables from the shore. The head  
25 of the gulf is a sandy beach with some houses on it. There is anchorage in the middle of the gulf in 7 fathoms water southward of the dry rock, sheltered from westerly winds, but the holding ground is not good.

*Chart 1131, Island of Corsica.*

- 30 **The coast** from Pointe Presca Giocana trends northward, and is low,  $1\frac{1}{2}$  miles to Pointe Fautea, being an undulating plain rising to the mountains of La Vacca Morla and Mont Calva, 4,521 feet high.

- Pointe Fautea** (*Lat. 41° 43' N., Long. 9° 25' E.*) is a little rocky peninsula, on which is a tower. An islet, 105 feet high, lies close off  
35 the point. The peninsula is situated between two beaches, that of Lavo (Lovo Santo) to the south, and that of Conca to the north, on either of which landing may be effected.

- The coast** from Pointe Fautea trends northward  $3\frac{1}{2}$  miles, to Anse de Favone; it is low within Conca beach, and moderately high  
40 northward of it. The 100-fathom contour line approaches the coast to one mile, and anchorage is only possible close to the land; the bank of soundings extends further off the coast both to the southward and northward.

*General charts 1131, 1780, 676, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

**Calanque de Tarco**, about 2 miles northward of Pointe Fautea, is small, with a beach, noticeable from a large bridge with three arches over Rivière de Tarco, which flows through it. There are some houses at Tarco, but no shelter for vessels. 5

**Anse de Favone**, sometimes called Port Favone, which it scarcely deserves, lies on the north side of Pointe Guardia; its beach extends about a mile from the point, and on it are several dilapidated houses. Ruisseau de Favone flows into the bay at the northern end of the beach, and is crossed by a bridge with two arches, and on the point at the end of the beach is a chapel with a bell tower. At the head of the valley through which the stream flows is Mont Batar-chione, a rocky peak, shaped like a thimble, surmounted by an old surveying pillar. Rocks extend off the northern point of the cove, and in its north-western part is a rock with 8 feet water. Coasting vessels anchor near the south point, and secure their sterns to rocks. The cove is open to the eastward. 10 15

**The coast** from Anse de Favone trends northward 5 miles to La Solenzara, and is moderately high and rocky, with some beaches. Anse de Canelle (Cannelle), where there is a beach which affords a landing with sufficient shelter for boats during north-easterly winds, lies  $1\frac{1}{4}$  miles northward of Anse de Favone. Cala d'Oro and Cala de Manichino, between Anse de Canelle and La Solenzara, are small, with beaches, and used by fishing boats. Mont Santo, 2 miles westward of Cala d'Oro, is a round wooded limestone summit, the southern side of which is very steep. There is a bridge on Plage de Cala d'Oro, but it is not well seen from seaward, and a conspicuous bridge on Plage de Manichino, which carry the road over streams. 20 25

**La Solenzara.**—The mouth of Rivière Solenzara (*Lat.*  $41^{\circ}52'N.$ , *Long.*  $9^{\circ}24'E.$ ) is a small estuary about 3 cables long, in which there is sufficient water for boats; a bar extends off the northern point and the boat channel is near the southern bank, but it is not practicable when there is any swell. The village de la Solenzara is marked by the buildings and two chimneys of a disused factory on the right bank of the river, and some houses near the coast; on the left bank of the river is a wood of eucalyptus trees. Kamiesh is a group of houses amongst the trees. A large white triangular surveying pyramid stands on the heights inland. 30 35

Anchorage off the river is very bad, even with westerly winds; vessels roll heavily, and when an easterly swell becomes heavy it is necessary to get under way before the easterly wind, which will set in suddenly a few hours later, arrives. 40

**Life-saving station.**—A rocket apparatus is stationed at La Solenzara Custom house.

*General charts 1780, 676, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

**Mont l'Incudine**,  $8\frac{1}{2}$  miles westward of La Solenzara, is 7,008 feet high.

**The coast** northward of La Solenzara is a sandy beach nearly  
5 to Bastia, a distance of 50 miles. As a general rule it should not be  
approached to less than  $1\frac{1}{2}$  miles, or to a depth less than 11 fathoms;  
the water shoals suddenly in places from depths less than 8 fathoms.

**Rivière Chiola**,  $1\frac{1}{2}$  miles northward of La Solenzara, is crossed  
by a bridge which is noticeable; there are some breakers off the  
10 mouth of the river. Half-way up the hills inland is the white house  
of Pedraniello, a good mark. More to the northward is Tovisono  
farm, a white house surrounded by walls, and on a height inland is  
a ruined castle.

**Rivière le Travo**, one mile northward of Rivière Chiola, is marked  
15 by a large bridge.

**The coast** northward of Le Travo is extremely low to the mouth  
of Fium Orbo, a distance of 5 miles. A rocky bank, with less than  
5 fathoms water extends three-quarters of a mile off the coast between  
Le Travo and Étang de Palo, about  $2\frac{1}{2}$  miles to the northward.

20 **L'Abalesco** (Abatesco), an impetuous torrent, falls into the sea  
about  $1\frac{1}{4}$  miles northward of Étang de Palo, and forms the little Étang  
de Graduggine (Gradugine) within the sandy coast.

Calsarello is a village of about ten huts, amongst which may be  
seen a brick house with a tiled roof in its southern part, situated  
25 on the southern side of the mouth of Fium Orbo.

**Caution.**—It is prudent to keep a good distance off-shore in the  
vicinity of the mouths of Rivière L'Abalesco and Fium Orbo, as the  
depths decrease rapidly, and the banks sometimes shift their posi-  
tions.

30 **Mountains.**—The heights of Ventiseri are about 3 miles west-  
ward of Étang de Palo; more to the southward is the curious Rocher  
de Mozza, 3,688 feet high, which rises like a gigantic column above  
the surrounding heights. Mont Capella, 10 miles westward of  
of the mouth of Fium Orbo, is a peak 6,706 feet high. The steeple  
35 of Prunelli di Fium Orbo, with a little dome, is on a hill, situated  
5 miles westward of the mouth of the river, and the valley of the  
Abalesco, is on its southern side. Northward of Mont Capella is the  
high range of Serra del Prato.

**Tour Vignale.**—The ruins of Tour Vignale (*Lat.  $42^{\circ} 0' N.$ ,  
40 Long.  $9^{\circ} 27' E.$* ) are situated on a little low projection of the coast,  
about one mile north-eastward of the mouth of Fium Orbo, but they  
are in the midst of pine trees, and not noticeable.

*General charts 1780, 676, 2138a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

**Sèche de la Marise**, about 4 cables southward of Tour Vignale, and detached from the coast, is awash, rocky, and steep to seaward.

**Ghisonaccia**.—A footpath leads from Vignale to Ghisonaccia, a village 2 miles to the westward. The present terminus of the railway from Bastia is near the village. 5

**The coast** from Tour Vignale trends north-eastward 7 miles to the mouth of Rivière Tavignano; it is well wooded with pine and eucalyptus trees, especially for about 4 miles from the tower. 10

Nearly midway between Tour Vignale and Rivière Tavignano is Étang d'Urbino, which is large, with depths of from  $3\frac{1}{2}$  to  $4\frac{1}{2}$  fathoms; it is entered from seaward by Foce de Fioraventi, a narrow passage, which is, however, sometimes closed. A rock (*Lat. 42° 3' N., Long. 9° 30' E.*) lies near the coast, about half a mile north-eastward of the entrance, and boats must guard against it. 15

**Rivière Tavignano** is accessible to boats in fine weather; the banks are low and bare. The bar of the river, which breaks when there is any swell, extends nearly one mile seaward from the entrance. The river is subject to sudden freshets after storms in the mountains, and it often inundates its lower basin. 20

Fort d'Aleria is on a hill about  $1\frac{1}{2}$  miles within the mouth and on the south side of the river; a square steeple and a triangular breastwork in ruins are noticeable, and also the houses of Aleria village, a little further inland. Antisanti village, about 9 miles west-north-westward of the river entrance, is on the summit of a very pointed peak. 25

**Life-saving station**.—A rocket apparatus is stationed at Aleria Custom house.

**The coast** from Rivière Tavignano trends northward 9 miles to Alistro lighthouse. The entrance to Étang de Diana (Diane) is about  $2\frac{1}{4}$  miles northward of the river, and is marked by a piece of wall, being all that remains of Tour de Diana, at the foot of a very steep cliff; the étang is deep, but not accessible in summer, and there are rocks on both sides of the entrance. Tour Bravone, 3 miles northward, is partly demolished; Tour d'Alistro lies  $3\frac{1}{4}$  miles further northward, and on the southern side of the entrance to Ruisseau d'Alistro, but only its base remains on the beach. 30

The coast should not be approached within a mile.

**LIGHT**.—A light is exhibited, at 308 feet above high water, from a grey octagonal tower with a basement, 96 feet high, on a hill, about half a mile north-westward of Tour d'Alistro. 40

**Signal station**.—There is a semaphore close southward of the lighthouse.

*General charts 158, 1780, 676, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

**The coast** from Alistro lighthouse (*Lat. 42° 15' N., Long. 9° 33' E.*) trends northward 27 miles to Bastia, and is sandy, with several small rivers flowing through it to the sea. Mont Sant' Appiano, nearly  
 5 5 miles westward of Alistro lighthouse, is a conical peak about 3,600 feet high. Tour Florentina (Florentine), on the coast 1½ miles northward of the lighthouse, is in ruins.

**Prunete village** is on the coast about 2½ miles northward of Tour Florentine, and the houses are built on each side of the landing  
 10 place; on the southern side is an old tower with a modern conical roof, and on the north side a moderately large house faces the sea. Landing on the beach is generally a little easier than on other beaches in the locality.

**Life-saving station.** — A rocket apparatus is stationed at  
 15 Prunete Custom house.

**Padulella village**, about 3½ miles northward of Prunete, is three or four houses near a greyish beach. Inland are many villages and churches, and the country is highly cultivated.

**Fium Alto** flows into the sea about 3½ miles northward of  
 20 Padulella village, and it is marked by a high wooded sandhill half a mile to the southward, and a group of trees on the northern bank. The river is the southern limit of the northern plains of the east coast, which extend to about 2 miles from Bastia. At the head of the river valley is the summit of Mont San Pietro, 5,794 feet high, steep,  
 25 blackish, and rocky.

**The coast** between Fium Alto and Rivière du Golo, 5 miles to the northward, is uniformly low and bordered with sand.

Pellegrino beach is three-quarters of a mile northward of the mouth of Fium Alto and on it is a ruined house.

**Life-saving station.**—A rocket apparatus is stationed at Pellegrino Custom house.  
 30

**Mont Sant' Angelo**, 6 miles westward of Pellegrino, and within the plain, has a noticeable square peak, and there are several villages at its base.

**Rivière du Golo.**—The mouth of Le Golo lies between two  
 35 projecting sandy points, both very low and blackish in colour. It is completely barred by a series of shoals which forms to seaward of it. The vegetation is very thick on both banks within the mouth. When the sea is smooth, a boat can cross the bar and ascend the river across  
 40 the plain, which here has its greatest breadth of about 3½ miles.

**Pointe d'Arco** is about 2½ miles northward of the mouth of Rivière du Golo, the coast between being low and sandy, and on it is  
 • a tower, which can scarcely be seen, and some fishermen's huts. Mont

*General charts 158, 1780, 676, 2158a. 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

Tajjoni, about 6 miles westward of the point, has three noticeable summits, the highest being like a citadel in appearance. At the base of the mount, and eastward of it, is Borgo village, with its fine campanile on a spur to the northward; the steeple of Ortale, north-eastward of the mount, is noticeable. 5

**Anchorage.**—Pointe d'Arco anchorage is nearly 2 miles northward of the point (*Lat. 42° 34' N., Long. 9° 31' E.*), in 11 fathoms water, weeds, sand, and mud bottom.

**Étang de Biguglia.**—The coast from Pointe d'Arco turns north-westward, and is a narrow strip of low sand dunes, covered with a thick vegetation, separating Étang de Biguglia from the sea. The étang extends about 6 miles north-westward, with a greatest breadth of  $1\frac{1}{2}$  miles, and it abounds with fish. A channel, with about one foot water, leads into the northern end of the étang, and there is also a canal from its southern end to Rivière du Golo. 10 15

*Plan 1166, Bastia.*

**The coast** from the entrance channel into Étang de Biguglia trends northward nearly 2 miles to Anse de Porto Vecchio; the sandy beach ends about midway, and immediately northward of it is a little cliff, behind which is the cemetery; here the railway is close to the sea. Northward of the cliff the coast is low and cultivated, but it rises rapidly to the rocky promontory separating Anse de Porto Vecchio from Vieux port of Bastia. 20

**Anse de Porto Vecchio** affords shelter from the libeccio in 13 fathoms water, with Sainte Marie church, in the middle of the citadel, bearing about 336° true, distant 3 cables. 25

**PORT de BASTIA**, the most important port of Corsica, consists of Vieux port, on the northern side of the rocky promontory, on which is the citadel, and Port Saint Nicolas, about 4 cables further northward. 30

**Approach.**—**Submarine vessels exercising.**—**Fairway reserved for navigation.**—When the flag, upper half red and lower half yellow, is hoisted at the signal stations or by the vessel escorting submarine vessels, indicating that the latter are exercising submerged, vessels entering or leaving Port de Bastia must use the fairway, in which submarine vessels are prohibited from exercising submerged, limited thus: On the south, by the alignment of Mont Pigno and Sainte Marie church, 282° true; and on the north-east by the arc of a circle with a radius of 2 miles, and Sainte Marie church the centre, intercepted between the south limit and the coast northward of the port. 35 40

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan 1166, Bastia. Var. 9° 20' W.*

**LIGHTS.**—A light is exhibited, at 54 feet above high water, from a white circular turret, 41 feet high, on the head of *Jetée du Dragon* or *Jetée Sud*.

- 5 A light is exhibited, at 41 feet above high water, from white circular turret, 28 feet high, on *Môle Génois* or *Vieux môle Nord*.

A light is exhibited, at 37 feet above high water, from a white iron column, 22 feet high, near the head of *Jetée Saint Nicolas*.

- 10 A light is exhibited from a lantern on a masonry base situated on the inner side of the road between *Batterie Saint Erasme* and the entrance to *Port Saint Nicolas*.

- Vieux port** is partly formed by a cove on the northern side of the promontory on which is the citadel; it is within *Jetée du Dragon*, which extends in a curve about 150 yards northward from the eastern extreme of the promontory, and *Môle Génois*, which extends about 150 yards in a curve south-eastward from the north point of the cove, leaving an entrance, about 90 yards wide, between them.

- There are depths of  $5\frac{1}{2}$  and  $6\frac{1}{2}$  fathoms in the entrance, but the 3-fathom line is a little more than 100 yards inside, whence the water shoals north-westward to the head of the port.

The port is sheltered from south-easterly winds, but easterly and north-easterly winds send in a sea which renders the outer part of the port untenable.

- There are two quays in the inner part of the port for loading or discharging cargo; *Quai de la Santé*, on the northern side, extends eastward to and along the inner part of *Môle Génois*; vessels of 14 feet draught can go alongside the inner part of the mole, but all vessels are generally moored with sterns to the quay, and use lighters for dealing with the cargo. *Quai du Sud* is not so well sheltered, and the depth alongside is less, with rocky bottom in places; on the coast between *Quai du Sud* and *Jetée du Dragon* is a narrow space furnished with bollards, which are also placed on the inner part of the jetty.

- The Naval office is on *Quai de la Santé* (*Lat. 42° 42' N., Long. 9° 27' E.*).  
35 There is a warping buoy in the outer part of the port.

**Shoal.**—A small shoal patch, with  $2\frac{3}{4}$  fathoms water, lies half a cable eastward of the shore at the inner end of *Môle Génois*.

- Caution.**—The libeccio, which descends from *Mont Pigno* in violent squalls, is much feared at *Bastia*, especially by vessels in *Vieux port*; it is then necessary to double the moorings if at anchor; on entering with a libeccio a vessel should lie head to wind instead of, as usual, head to seaward. See also page 238.

**Port Saint Nicolas**, on the northern side of the town, is within *Jetée Saint Nicolas*, which extends 150 yards eastward from *Pointe*

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan 1166, Bastia. Var. 9° 20' W.*

des Jesuites, then 200 yards south-eastward, and then 600 yards southward, parallel with the shore; an extension of the southern end of the last portion is nearly finished (1915). A jetty extends about 150 yards eastward into the port from the shore about 2 cables southward of Pointe des Jesuites, and a jetty extends about 80 yards from the shore under Batterie Saint Erasme (*Lat. 42° 42' N., Long. 9° 27' E.*), about 1½ cables further southward. 5

There are depths of from 5½ to 9 fathoms in the port for about 100 yards westward of the southern portions of Jetée Saint Nicolas, and thence the water shoals gradually to the shore. 10

The two inner portions of Jetée Saint Nicolas are lined with quays, and vessels go alongside them, sheltered from north-easterly winds and spray by a wall; there is a depth of from 20 to 26 feet alongside the inner portion and of 26 to 49 feet alongside the second portion. The southern portion of the jetty has depths of from 8 to 9 fathoms close to, but rocks prevent approach to it nearer than about 20 yards. There is a quay along the shore in the northern part of the port; it is reserved for mail steamers, and has depths of from 11 to 17 feet alongside; there are landing steps here for boats. 15 20

The port is accessible in any weather, and the inner part is well sheltered from all winds. The railway runs on to the quays and also the jetty extending eastward into the port.

**Buoys.**—A red buoy is moored about 60 yards eastward of the lighthouse on the southern end of Jetée Saint Nicolas, and marks the extension works; the passage between the buoy and the jetty must not be used. The extension works are covered by the *red* sectors of Jetée du Dragon and Batterie Saint Erasme lights. 25

Three mooring buoys are placed in the port parallel to the shore, and are for the use of vessels when the libeccio is blowing with squalls. 30

**Pilots.**—The pilotage station of Bastia extends from the anchorage in Anse de Porto Vecchio northward to the anchorage off Toga furnaces.

Vessels pay, on entering and on leaving the port, 0fr. 10c. per ton up to 500 tons; 0fr. 8c. per ton from 500 to 600 tons; 0fr. 7c. per ton from 600 to 700 tons; 0fr. 6c. per ton from 700 to 800 tons; 0fr. 5c. per ton from 800 to 900 tons; 0fr. 4c. per ton from 900 to 1,000 tons, and 0fr. 3c. for every ton over 1,000 tons. 35

Vessels of less than 80 tons taking a pilot pay 8fr. both on entering and leaving. 40

There are special rates for vessels of war.

When the weather will not permit a pilot to go out to a vessel about to enter he will remain in the entrance and direct the vessel by signals and by voice. 45

*General charts 1131, 153, 1780, 2158a, 449.*



*Plan 1166, Bastia. Var. 9° 20' W.*

**Approach.**—In approaching Port de Bastia (*Lat. 42° 41' N., Long. 9° 27' E.*), Mont Pigno, 3,642 feet high, and about 2 miles westward of Vieux port, is noticeable. The old Fort de la Croix, south-westward of the town, is conspicuous, and north-westward of it is the Capuchin convent, surrounded by trees; south-eastward of the fort is the suburb Saint Joseph, with its church on a hill at its southern end. On the southern side of Vieux port is a rocky promontory, occupied by the citadel, in the middle of which is Sainte Marie church, which has a white campanile. In the town, Saint Jean church, with two steeples, is conspicuous; a little above and inside it is the theatre, a large square building, with the military hospital on a hill to the northward. Westward of Port Saint Nicolas is the valley of Rivière Fango, with Cardo village, having a square steeple and two factory chimneys, at its head. Sainte Lucie church, with a large white campanile, is on a height northward of the valley. Northward of the town are the gasworks, Toga furnaces, and, near the coast, the ruins of Tour Toga.

**Directions.**—To enter Vieux port, steer in with Saint Jean church steeples bearing about 270° true, and when Sainte Marie church is open north-westward of Jetée du Dragon lighthouse, steer through the entrance and round Môle Génois closely.

At night, steer westward to pass about half a cable northward of Jetée du Dragon light, keeping in the *green* sector of Batterie Saint Erasme light to clear the works at the south end of Jetée Saint Nicolas. Pass through the entrance, and round Môle Génois light closely.

It is dangerous to leave the port when strong south-easterly winds are blowing, on account of the heavy sea outside the moles.

For Port Saint Nicolas, approach with Saint Jean church steeples bearing about 270° true; when the white iron light-column at the end of Jetée Saint Nicolas bears about 315° true, turn gradually northward and keep about 50 yards within the mole. As the squalls during the libeccio are very violent, and the bottom is shelving rock, vessels should anchor near one of the mooring buoys in the port, and secure to one of them.

**Outer anchorage.**—There is temporary anchorage outside a line joining the heads of Jetée du Dragon and Jetée Saint Nicolas, with Saint Jean church steeples bearing about 265° true, in from 18 to 22 fathoms, weeds.

**The town** of Bastia, the former capital of the island, and now its principal commercial town, is built on a narrow strip of land between the coast and the spurs from Mont Pigno; it therefore has no depth, and extends along the sea and on the heights, presenting an imposing

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan 1166, Bastia. Var. 9° 20' W.*

aspect from its houses having many stories. The town is badly built, with narrow crooked streets; it is divided into two parts, a new town and an old town; the latter, surrounded by ramparts, was defended by a citadel, which stands above the rocky cliffs southward of the port, and further by Forts de la Croix and Straforello, on the heights within the port and town. 5

Bastia is the seat of a court for the island, and also of tribunals of commerce and of primary jurisdiction; it has a communal college, a model school, a society of public instruction, a theatre, public gardens, gasworks, and a hospital for seamen. 10

The population was 27,378 in 1911.

A British Consul is stationed here.

**Trade.**—The total imports and exports in 1914 amounted to 38,484 tons; in 1913 they amounted to 103,618 tons. 15

The principal imports from the United Kingdom in 1914 were coal (9,806 tons), sewing machines and pieces of machinery, empty barrels, textile fabrics, nickel goods, and tea, and the exports to the United Kingdom were citron in brine, cork, briar wood for pipes, and chest-nut wood extract for tanning. 20

The coasting trade between Bastia and France is conducted in French vessels only. There are two large tanneries.

**Shipping.**—In 1914 the port was entered by 215 vessels, of 116,295 tons; in 1913 it was entered by 851 vessels, of 475,721 tons.

**Supplies.**—Provisions are plentiful and cheap. Water, from the town waterworks can be obtained by screwing on a canvas hose to a stand pipe on Quai de la Sante; it is at a high pressure, and is said to be fairly good for drinking, but to be sometimes turbid. 25

**Coal.**—Bastia (*Lat. 42° 41' N., Long. 9° 27' E.*) is not a coaling port, the coal imported being required for local wants; possibly in case of urgency some 500 tons could be supplied. 30

**Repairs.**—Urgent small repairs can be executed, work in metal being done at the forges of Toga factory, and work in wood at Anolletti workshops.

**Communication.**—A railway runs to Casamozza, and continues southward to Ghisonaccia; a line runs from Casamozza to Ponte Leccia, whence a line runs westward to Île Rousse and Calvi, and another southward to Ajaccio. There is telegraphic communication, the office being open till midnight. 35

**Life-saving station.**—There is a lifeboat in the port, and a life-saving gun and a rocket apparatus at the Custom house. 40

**Pointe de Toga,** 3½ cables northward of the root of Jetée de Saint Nicolas, is marked by Tour de Toga in ruins, and close southward of it are the Toga furnaces.

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan 1166, Bastia. Var. 9° 20' W.*

A group of low rocks lies about a cable northward of the root of Jetée Saint Nicolas and half a cable off-shore.

A group of low rocks and shoal water extends one cable south-east-  
5 ward from Pointe de Toga (*Lat. 42° 43' N., Long. 9° 27' E.*).

*Chart 1131, Island of Corsica.*

**The coast** from Pointe de Toga trends northward about 6 miles to Cap Sagro. Miomo village, 2 miles northward of the point, is marked by a well preserved tower on a rocky point, near a group of  
10 houses. Vasina (Lavasina) village, 1½ miles northward of Miomo, is within a small beach, and has a fine church. A little north-westward of Vasina is Brando, where there is a large white mill.

**Erbalunga** is about one mile northward of Vasina, and close northward of it is a rocky point, on which are some old houses and a  
15 ruined tower; small vessels shelter from northerly winds under the point, off which there is a rock.

**Life-saving station.**—A rocket apparatus is stationed at Erbalunga Custom house.

**Anse des Tombeaux**, northward of the rocky point just mentioned, is small, and affords shelter to boats from north and north-east  
20 winds; there are many mortuary chapels at the head of the bay, one of which has a dome, supported by columns. The north shore of the bay is bordered by rocks.

**Cap Sagro** is a slightly projecting cliffy point; to the southward of it is Morne de Tresoro, large and rocky, with a pyramid on it, and on  
25 the slope of Merizatodio behind, a modern castle with a square rose-coloured turret.

**Signal station.**—There is a semaphore on a little hill, and 448 feet above high water, about half a mile northward of Cap Sagro.

**The coast** from Cap Sagro trends northward 10 miles to Port de Macinaggio, and is rocky and bordered by cliffs of moderate height,  
30 which are broken by small bays with beaches.

The valley of Sisco, about one mile northward of Cap Sagro, has a small beach at its entrance; in the villages of the valley are, besides  
35 several well-built houses, Crosciano steeple and Sainte Antoine chapel.

La Plage de Pietra Corbara, 1½ miles northward of Sisco, is about 3 cables long with a fairly extensive plain inside it; at its northern end is a point of projecting rocks, which affords shelter to boats from  
40 north and north-east winds; there is a rock awash off the south end of the beach.

A rock, with 3 feet water, is charted about 2½ cables off-shore, 1½ miles northward of Pietra Corbara.

*General charts 158, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

Porticciolo (*Lat. 42° 53' N., Long. 9° 28' E.*), 2½ miles northward of Pietra Corbara, the coast between being rocky, is a small bay, on the south side of which is Cagnano beach; a group of houses, of which one is large and painted red, stands against a rocky promontory on the south side of the beach. 5

Marine de Luri or Santa Servera, half a mile northward of Porticciolo, is a group of houses, amongst which is a large building with a white roof. A semicircular jetty, inside which is a depth of 10 feet, affords protection from northerly winds, but there is no shelter from south-easterly winds. 10

Maria (Meria), 2¼ miles northward of Luri, is a small bay with a beach; there is a group of houses and a chapel on the southern end of the beach and a round tower on its northern end; an old mill stands on the promontory on the north side of the bay. 15

The villages just mentioned derive their names from larger towns in the interior of the island, of which they are the ports. The bays are only suitable for coasting and fishing vessels during off-shore winds.

**Life-saving station.**—A rocket apparatus is stationed at Luri Custom house. 20

*Plan, Tamarone and Macinaggio bays, on 1126.*

**The coast** from Maria trends north-westward 1½ miles to Port de Macinaggio, and is cliffy. A bank extends about 1½ cables off its northern part.

**Port de Macinaggio** is within two jetties which project about half a cable from the shore at the south end of Baie de Macinaggio. There is a depth of not more than 8 feet in the southern part of the port, but inside *Jetée du Nord* there are depths of less than 3 feet, and a rock awash. There is only sufficient room in the port for four small craft. Three iron mooring buoys for torpedo boats have been placed in the port. 25 30

**Light.**—A light is exhibited from an iron standard on a shed, 22 feet in height, on the head of *Jetée du Sud*.

**Macinaggio village** borders the port, and there is a chapel on its northern side. 35

**Supplies.**—Some provisions could be obtained in the village, and water from a fountain on the quay.

**Baie de Macinaggio.**—*Pointe de la Coscia* is about 4 cables northward of Port de Macinaggio, and Baie de Macinaggio extends westward about 2 cables between them. The head of the bay is a sandy beach, and a bank with less than 3 fathoms extends 2 cables off it. Within the beach is Rogliano valley. 40

*General charts 1131, 158, 1780, 2158a, 449.*

*Plan, Tamarone and Macinaggio bays, on 1126. Var. 9° 26' W.*

**Telegraph cable.—Beacons.**—A telegraph cable is landed in the south part of Baie de Macinaggio, and is marked by two beacons, each painted blue and white in horizontal stripes, and  
5 surmounted by a white disc, which in line bear 230° true. Anchorage is prohibited near the alignment of the beacons.

**Anchorage.**—With westerly winds there is anchorage off Macinaggio, which is used by vessels awaiting a change to round Cap Corse. The usual position is about 2½ cables eastward of a sentry box  
10 at the root of Jetée du Sud, in from 4½ to 5 fathoms water, sand and weeds. The holding ground is not good southward of this position, and the violent squalls that come down Rogliano valley when the libeccio is blowing are felt to the northward of it. Macinaggio and Bastia appear to be the two places on the east coast where the greatest  
15 violence of the libeccio is experienced; at the other places on this coast its effects are quite local, and frequently vessels that have been driven to sea by it have found a moderate wind about 10 miles from the land.

**Pointe de la Coscia** (*Lat. 42° 58' N., Long. 9° 27' E.*) is a  
20 small limestone projection, 184 feet high, but the colour of the rock of which it is composed is not noticeable; there is an old mill on the point, and a limekiln is in use.

**The coast** from Pointe de la Coscia trends north-north-westward half a mile to the south end of the beach in Baie de Tamarone, and  
25 is very steep.

**Baie de Tamarone** is off the sandy beach just mentioned, which extends about 3 cables to the northward and eastward. A stream flows through the beach. On the north point of the bay is a little house half-way between the base and summit.

30 **Sommet de Tamarone**, 367 feet high, and surmounted by a pyramid, is northward of the bay. Anchorage can be obtained here sheltered from the libeccio, and is preferable to that off Macinaggio.

*Chart 1131, Island of Corsica.*

**Iles Finocchiarola.**—The coast from the northern point of  
35 Baie de Tamarone trends northward three-quarters of a mile to a point within about 4 cables off which are three islets; on the outer of the islets is the conspicuous Tour de Finocchiarola, and on the platform of the tower a surveying pyramid.

The passages between the islets and between them and the land are  
40 shallow and encumbered with rocks.

Small fishing vessels obtain shelter from winds between west, through north, and north-east, southward of the islets in about 5 fathoms water.

*General charts 1131, 158, 1780, 2158a, 449.*

*Chart 1131, Island of Corsica. Var. 9° 20' W.*

**The coast** from the point off which are Îles Finocchiarola trends north-westward half a mile to Pointe Sainte Marie, and about mid-way between and a little inland is Chapelle Sainte Marie; on Pointe Sainte Marie is a tower, partly demolished; the coast thence continues north-westward about  $1\frac{1}{2}$  miles to Pointe de l'Agnello, and is a series of little cliffs bordered with rocks and shoals; there are two little bays with beaches. The coast should be given a good berth. 5

**Danger de Sainte Marie.**—About 3 cables north-north-eastward from Pointe Sainte Marie is a rocky shoal of small extent with  $2\frac{3}{4}$  fathoms water; the passage between the shoal and the land should not be used for navigation. 10

**Banc de Sainte Marie** extends nearly half a mile eastward from about half a mile east-north-eastward of Danger de Sainte Marie, and has from 7 to 5 fathoms water, rock bottom. The sea becomes very heavy on the bank with northerly and easterly winds. 15

**Anchorage** can be obtained between Danger and Banc de Sainte Marie during off-shore winds in 10 fathoms, weeds, with the tower on Pointe Sainte Marie bearing about  $228^{\circ}$  true, distant three-quarters of a mile; caution is necessary to avoid the shoals. 20

**Point de l'Agnello** (*Lat.  $43^{\circ} 1' N.$ , Long.  $9^{\circ} 25' E.$* ) and the coast to the westward See page 201.

*General charts 158, 1780, 2158a, 449.*

## CHAPTER IV.

COAST OF THE NORTH-WESTERN PART OF ITALY.—FIUME SAN  
LUIGI (THE FRENCH FRONTIER) TO PIOMBINO.—TUSCAN  
ARCHIPELAGO (ARCIPELAGO TOSCANO).

*Lat. 44° 26' N. to Lat. 42° 14' N., Long. 7° 32' E. to Long. 11° 7' E.*

VARIATION IN 1917.—Decreasing about seven and a half minutes  
annually.

*Plan 3220, Cape Ferrat to Bordighera. Var. 10° 20' W.*

**The coast** from the mouth of Fiume San Luigi (page 163) trends east-south-eastward nearly  $1\frac{1}{4}$  miles to Punta della Mortola, and is low cliffs broken by small sandy beaches. The 10-fathom line is  
5 about a quarter of a mile off it, and within the line are depths of  $5\frac{1}{2}$  and  $6\frac{1}{2}$  fathoms in places.

**Punta della Mortola** (*Lat. 43° 47' N., Long. 7° 33' E.*) is well marked by Villa Hamboury (Hambury), a reddish building with a square turret, and surrounded by a thick vegetation. A rocky spit,  
10 the inner part of which is above water, and the outer part has about 3 feet water, extends nearly 2 cables southward from the point.

**The coast** from Punta della Mortola trends northward half a mile, and then turns eastward nearly  $1\frac{3}{4}$  miles to Punta della Roccia; it is high and well cultivated; a bank with less than 5 fathoms water  
15 extends about 3 cables off it.

Castel d'Appio, on the crest of a hill about half a mile inland, between Punta della Mortola and Punta della Roccia, is noticeable from near the coast.

**Anchorage.**—There is temporary anchorage during the libeccio  
20 with Villa Hamboury bearing 270° true and Castel d'Appio 31° true, in  $5\frac{1}{2}$  fathoms water, sand bottom, and about a cable outside the 3-fathom line. Small vessels anchor nearer the land in about 3 fathoms water.

**Punta della Roccia** is a small projection which rises, about  
25 2 cables inland, to a hill, 531 feet high; on the hill is an old fort, and half-way up Batteria dell'Annunziata, now converted to a barracks.

*General charts 2669, 1780, 2158a, 449.*

*Plan 3220, Cape Ferrat to Bordighera. Var. 10° 20' W.*

Scoglio Alto and Scoglio Tondo lie eastward of the point; the first, about 60 feet high, with a base about 20 feet in extent, is on the beach, and isolated; the other, close to the southward, is low.

**Ventimiglia** (ancient Albium Intemelium), consists of the old part built on the hills between Punta della Roccia and Fiume Roja, half a mile to the eastward, and Sant' Agostino, the modern part, on the low land to the eastward of the river, which is crossed by two long bridges, one of masonry with five arches, and the other, of metal, near the mouth. The cathedral has a pointed campanile. There is a station of the Paris, Lyons, and Mediterranean and the Ventimiglia and Genoa railways at Sant' Agostino. Olives and flowers are produced. The population was about 14,571 in 1911.

**Anchorage.**—Coasting vessels anchor off the town, in about 9 fathoms, sand and mud, during off-shore winds, but the roadstead must be left should a southerly wind set in.

**The coast** from Ventimiglia trends east-south-eastward 3 miles, to Capo di Bordighera, and is a beach through which Fiume Roja and Torrente Nervia flow; the coast bank, with less than 5 fathoms, extends off from 2 to 4 cables. Capo di Bordighera is of moderate height.

**Bordighera town.** (*Lat. 43° 47' N., Long. 7° 40' E.*) is in two parts, the new part extending along the beach westward of the cape, and the old part situated on rising ground northward of it. The town is a popular winter health resort, and noted for the cultivation of flowers, and especially of palms. The principal industries are making cotton and woollen goods; wine, oil, fruit, vegetables, and cattle are produced. The population was 4,388 in 1911.

A British Vice-Consul is stationed at Bordighera.

**Anchorage** can be obtained off the new town, in about 6 fathoms, sand, 2 cables from the beach, during off-shore winds, and in 5½ fathoms one cable off-shore and about 2 cables north-eastward of the cape, sheltered from westerly and north-westerly winds.

**Communication.**—There is a railway station at Bordighera; an electric tramway runs to Ventimiglia. The telegraph office is open at limited hours.

*Plan 3219, Bordighera to Oneglia.*

**The coast** from Capo di Bordighera trends north-eastward 1 $\frac{3}{10}$  miles to Punta Madonna della Ruota, within which is a reddish chapel; it then curves northward and eastward 2 $\frac{2}{10}$  miles to Capo Pino, forming a bay with a sandy beach, off which there is anchorage in from 8 to 10 fathoms during winds from between west and north-east. Ospedaletti village is on the coast about one mile north-eastward of

*General charts 3219, 2609, 157, 1780, 2158a, 449.*



*Plan 3219, Bordighera to Oneglia. Var. 10° 20' W.*

- Punta Madonna della Ruota; its casino is a large yellow building, with arched windows, and surmounted by three cupolas. Colla village, with a campanile, is on a hill 830 feet high, one mile north-eastward  
5 of Ospedaletti.

**Capo Pino** is rounded, and rises to Monte Corvi, 715 feet high, a quarter of a mile to the northward; a zig-zag road, leading to Colla, runs up the southern face of the hill, and is noticeable from the southward.

- 10 **The coast** from Capo Pino (*Lat. 43° 48' N., Long. 7° 45' E.*) trends north-eastward 2 miles to Porto di San Remo. The 5-fathom line is about 2 cables off it, and a rock with 6 feet water lies about one cable off-shore one mile north-eastward of the cape.

*Plan, San Remo, on chart 157.*

- 15 **Porto di San Remo** is within South mole, which extends 550 yards eastward from the south-east angle of an old fort, now a prison, on the beach south-eastward of the town; near the middle of the mole is a quay 160 feet long. North mole extends about 50 yards eastward from the Harbour master's office, which is situated about one  
20 cable northward of the inner end of South mole. The depths in the middle of the port were from  $2\frac{1}{2}$  to  $3\frac{1}{4}$  fathoms, but a freshet in Torrente San Francesco, which flows into the port northward of the Harbour master's office, brought down a considerable quantity of sand and stones into the harbour; the greatest care is now necessary  
25 in entering the port, and South mole should not be approached without information as to the depth having been obtained from the Harbour master's office; dredging is in progress (1912).

There is a local iron foundry, and six hydraulic cranes for discharging cargo.

- 30 **Lights.**—A light is exhibited, at 28 feet above high water, from an iron standard on a circular hut at the head of South mole.

A light is exhibited, at 30 feet above high water, from an iron standard on a circular hut, at the head of North mole.

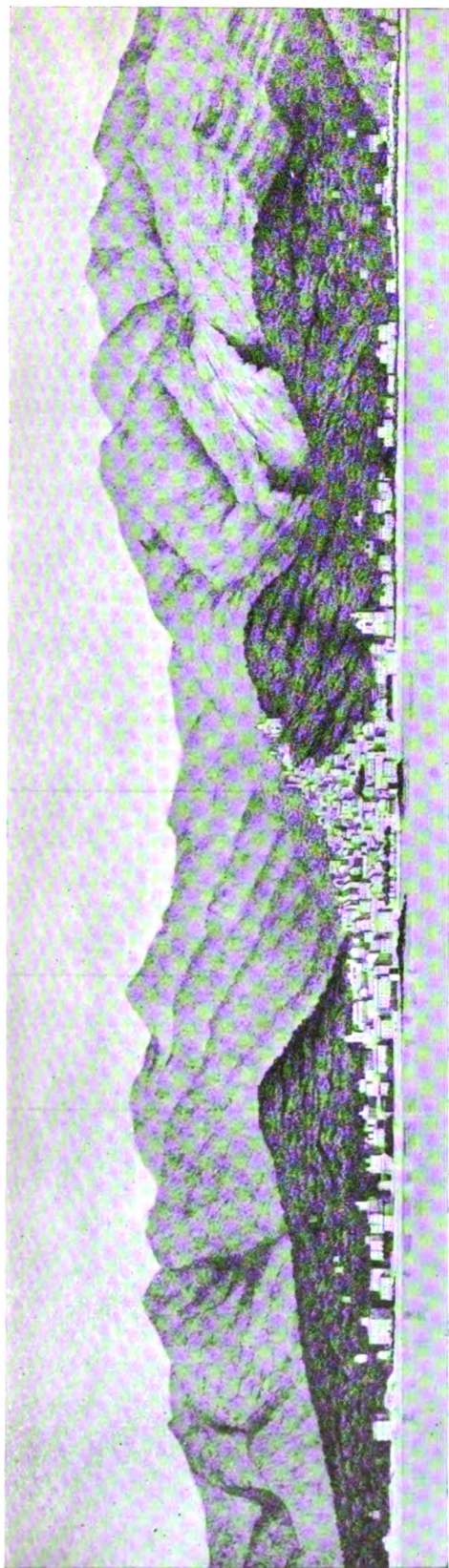
**Buoys.**—There are four mooring buoys in the port.

- 35 **Anchorage.**—There is anchorage in about 7 fathoms, sand, and good holding ground, about 2 cables eastward of South molehead, but it is safer to lie further out as it is open to the southward.

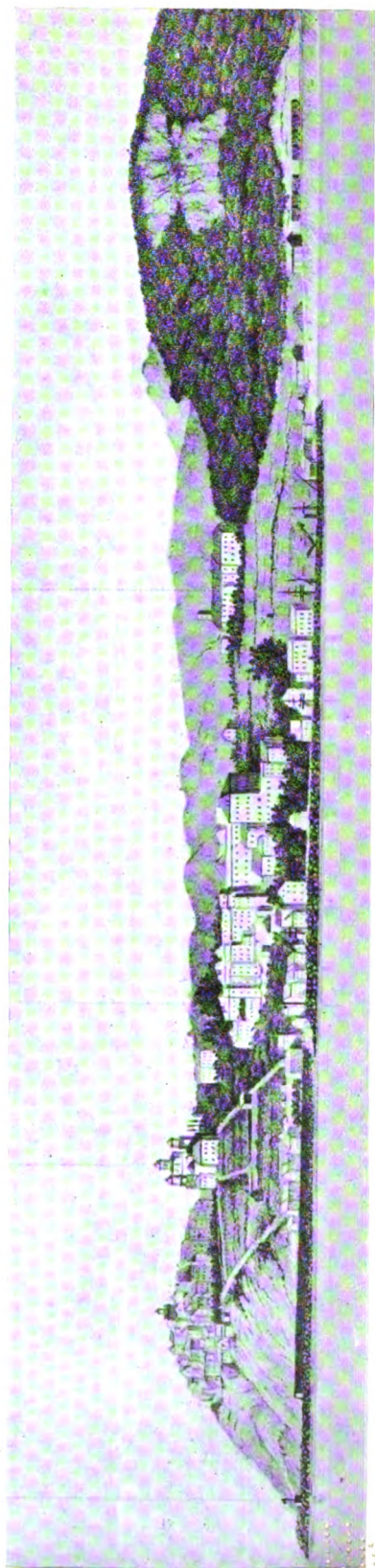
**San Remo town** is in two parts, one, the old part, on the steep slope of a hill, and the other, the new part, extending along the shore.

- 40 In addition to the hotels, there are numerous villas, amidst flourishing palm trees, in contrast with the oak and pine woods which cover the hill to its summit. The church della Madonna della Costa, with a white cupola, is on the hill behind the old town, and is conspicuous.

*General charts 3219, 2609, 157, 1780, 2158a, 449.*



San Remo from the south-eastward.



S. mole lighthouse.

Cathedral bearing 258° true, one mile.

Porto Maurizio.



*Plan, San Remo, on chart 157. Var. 10° 10' W.*

from all directions seaward. The town is frequented by invalids in winter. The population was 24,292 in 1911. View at page 242.

A British Vice-Consul is stationed here.

**Trade.**—In 1913 the exports amounted to 5,391 tons, and the imports to 13,276 tons; of the latter 4,925 tons were of coal and the remainder of general merchandise. The chief products are olive oil, lemons, wine, and flowers. 5

**Communication.**—There is a station of the Ventimiglia and Genoa railway at San Remo. There is telegraphic communication. 10

**Hospital.**—L'Ospedale Mauriziano, near the Church della Madonna della Costa, has 75 beds.

*Plan 3219, Bordighera to Oneglia.*

**The coast** from Porto di San Remo trends eastward about 2 miles to Capo dell' Arma. A bank, with less than 5 fathoms water, extends from  $1\frac{1}{2}$  to 3 cables off it. 15

**Capo dell' Arma** is steep, and bordered by rocks. The little chapel di Nostra Signora della Guardia is on a hill, 2 cables northward of the cape, and surrounded by woods.

Monte Calvo, three-quarters of a mile north-westward of the chapel, is 709 feet high, and Poggio village is on a hill, about 3 cables northward of Monte Calvo. Bussana vecchia, on a hill, 672 feet high,  $1\frac{1}{4}$  miles northward of Capo dell' Arma, is conspicuous. 20

**LIGHT.**—A light is exhibited, at 165 feet above high water, from a stone tower, over a one-storied house, 48 feet high, about a cable north-eastward of Capo dell' Arma (*Lat. 43° 49' N., Long. 7° 56' E.*). 25

**The coast** from Capo dell' Arma trends eastward  $3\frac{1}{2}$  miles to Punta di Santo Stefano. A bank with less than 5 fathoms water extends from  $1\frac{1}{2}$  to 4 cables off it. Torrente dell' Arma flows into the sea 4 cables north-eastward of the cape, and Bussana nuova village, close northward of its mouth, has a church, with a campanile surmounted by a bronze statue. Arma village extends along the coast north-eastward of Bassana nuova, and near its western end is an old large dark square tower. 30

**Shoal.**—A detached shoal, with 2 fathoms water, extends about 3 cables southward from Torre dell' Arma. 35

**Anchorage.**—There is temporary anchorage, with off-shore winds, in about 7 fathoms water, and Torre dell' Arma, bearing 300° true, distant nearly 3 cables.

**Pier.**—An iron pier projects about 190 feet seaward from the coast in front of Arma village; there is a depth of 12 feet at its outer end. 40

*General charts 3219, 2609, 157, 1780, 2158a, 449.*

*Plan 3219, Bordighera to Oneglia. Var. 10° 10' W.*

**Fiumara di Taggia** flows into the sea eastward of Arma, and between it and Punta di Santo Stefano are Riva and Santo Stefano villages. At the eastern end of Santo Stefano village is a noticeable  
5 yellowish octagonal tower, with windows.

**The coast** from Punta di Santo Stefano (*Lat. 43° 50' N., Long. 7° 54' E.*) trends eastward nearly 3 miles to Capo San Lorenzo, and the 5-fathom line is from 2 to 4 cables off it. Torre Alegai, on a little promontory about 6 cables eastward of the point, is 30 feet  
10 high. The coast between Punta di Santo Stefano and Torre Alegai is bordered by rocky foul ground to the distance of about one cable.

Torre Marmi, on a slight reddish rocky projection, about one mile eastward of Torre Alegai, is 60 feet high; Campanile di San Antonio is on a hill, 974 feet high, about three-quarters of a mile northward  
15 of Torre Marmi; about 6 cables eastward of the campanile is Torre de Poggio on a hill, 656 feet high, Costarainera village lying between.

**Capo San Lorenzo** is a low and sandy projection, and within it are two groups of houses forming the village of the same name; the church, with the campanile annexed, is on the cape southward of the  
20 north-eastern group of houses, and isolated.

**The coast** from Capo San Lorenzo trends east-north-eastward nearly 3 miles to Porto Maurizio, and the 5-fathom line is from 1½ to 4 cables off it. Torre Prino, on the coast, 1½ miles eastward of the cape, is a truncated cone in shape, and 69 feet high; Poggi village,  
25 with a campanile, is on a hill, 488 feet high, half a mile north-westward of the tower, and Borgo Prino is on the coast about 6 cables eastward of the tower. A rocky bank, with 3 feet water, extends about a cable off Borgo Prino.

*Plan 1402, Ports Maurizio and Oneglia.*

**Punta Chiappe** is about 4 cables eastward of Borgo Prino, and southward of Porto Maurizio town, and the coast between it and Punta della Coscia, 2½ cables north-eastward, is steep and rocky; the  
30 5-fathom line is 2 cables off it.

**PORTO MAURIZIO.**—The town stands on a wooded hilly  
35 promontory, on the summit of which is the large yellow cathedral, with a conspicuous cupola and two campaniles, also with cupolas. The railway station at the north-eastern end of the town is a yellow rectangular building. View at page 242. The population was 8,280 in 1911. The principal industries are making cotton and woollen goods;  
40 wine, oil, fruit, vegetables, and cattle are produced in the locality.

**Porto.**—The port is within two moles a little distance north-eastward of the town. South mole extends about 520 yards east-south-eastward from a point 2 cables north-eastward of Punta della Coscia,

*General charts 3219, 157, 1780, 2158a, 449.*

*Plan 1402, Ports Maurizio and Oneglia. Var. 10° 10' W.*

and North mole extends about 380 yards southward in a curve from the shore about 2 cables northward of the root of South mole. The entrance to the port is about 110 yards wide, between the moles, and open east-south-eastward, so that south-easterly winds send much sea and swell into the port. The depth in the fairway of the entrance to the port is  $3\frac{1}{4}$  fathoms, and in the port from  $3\frac{1}{4}$  to  $3\frac{3}{4}$  fathoms, but a large area in the south-western part is nearly dry. A transverse mole extends about 30 yards north-north-eastward from the inner end of South mole, and there is a quay on the north-west side of the port. South mole is being extended 65 yards.

The port is available for vessels of less than 18 feet draught. In entering the port, South mole should not be approached to less than 55 yards, nor the head of North mole to less than 25 yards. Vessels anchor in the port and haul their sterns to North mole.

**Lights.**—A light is exhibited, at 38 feet above high water, from a circular structure near the head of South mole.

A light is exhibited, at 33 feet above high water, from an iron standard over a circular hut, 17 yards inside the head of North mole.

A light is exhibited, at 18 feet above high water, from an iron standard on the head of the transverse mole.

**Mooring buoys.**—Two mooring buoys lie in the entrance to the port, eastward of North molehead, and a mooring buoy lies in the port.

**Anchorage,** open, except to northerly winds, can be obtained in favourable weather in 7 fathoms water, sand bottom, about 2 cables north-eastward of South molehead.

**Supplies.**—Water can be obtained on the quay on application at the Tax office.

**Repairs.**—There is a building slip and workshops for wooden vessels near the root of North mole.

**Hospital.**—The municipal hospital has 50 beds, and receives foreigners.

**The coast** from Porto Maurizio (*Lat. 43° 53' N., Long. 8° 1' E.*) trends east-north-eastward three-quarters of a mile to the mouth of Torrente Impero; it is a beach broken for about  $1\frac{1}{2}$  cables by the rocky Punta Forche Vecchie; the 5-fathom line is from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  cables off it.

**PORTO D'ONEGLIA** is within two moles; West mole extends about 300 yards southward from the shore  $1\frac{1}{2}$  cables eastward of Torrente Impero, and East mole extends 700 yards southward and south-westward from the shore about 2 cables further eastward. The entrance is open to the westward, and is about 100 yards wide, but

*General charts 3219, 157, 1780, 2158a, 449.*

*Plan 1402, Ports Maurizio and Oneglia. Var. 10° 10' W.*

the channel, with a depth of  $3\frac{1}{2}$  fathoms, has a width of about 55 yards, having been reduced by material brought down Torrente Impero by a freshet (1910); the depths are from  $3\frac{1}{4}$  to 4 fathoms in the port. The quays in the north-western angle of the port are generally used by steam vessels.

**LIGHTS.**—A light is exhibited, at 36 feet above high water, from an iron standard over a circular hut on East molehead.

A light is exhibited, at 30 feet above high water, from an iron standard over a circular hut on West molehead.

**Mooring buoys.**—There are two mooring buoys in the port, and one south-westward from East molehead.

**Anchorage.**—There is open anchorage in 7 fathoms water, sand bottom and good holding ground, about  $2\frac{1}{2}$  cables southward of East molehead, with the heads of both moles in line.

**The town** is situated on a plain eastward of the mouth of Torrente Impero, which is crossed by a suspension and a railway bridge. There are two campaniles in Oneglia, that of the cathedral being the western and higher (*Lat.  $45^{\circ} 53' N.$ , Long.  $8^{\circ} 3' E.$* ).

The population of Oneglia was 10,487 in 1911. The principal industry is the manufacture of macaroni, and wine, oil, fruit, vegetables, and cattle are produced in the locality.

The towns of Porto Maurizio and Oneglia are to be united and named Imperia, and a large harbour is to be constructed.

Castelvechio, on rising ground, about one mile inland on the left bank of the river, is a little group of houses with a campanile.

**Supplies.**—Fresh provisions are plentiful, and water can be obtained from the quay of West mole.

**Repairs.**—There are two yards where wooden vessels are built.

**Hospital.**—The civil hospital has 75 beds, and receives foreigners.

**Communication.**—There is a station of the Ventimiglia and Genoa railway at Oneglia, and there is telegraphic communication.

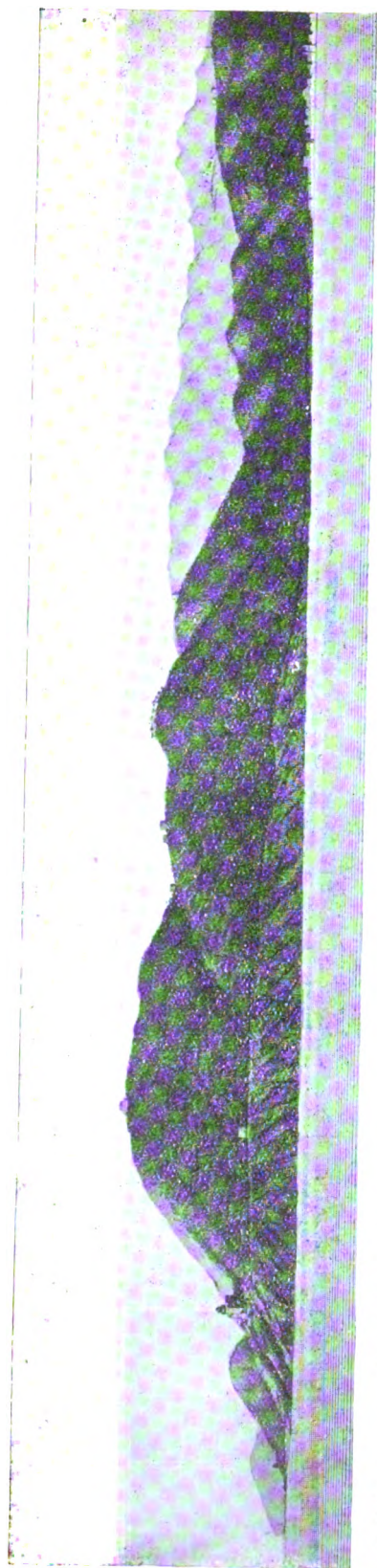
*Chart 157, San Remo to Cape Cavallo.*

**Capo Berta**,  $1\frac{1}{2}$  miles eastward of Porto d'Oneglia, rises to the height of 876 feet, and on the summit is Torre Arpisella, which is cylindrical, with its upper part painted white and surmounted by a cross. A rugged rock extends  $1\frac{1}{2}$  cables eastward from the cape.

**Firing practice** with rifles is sometimes carried on from a station between Oneglia and Capo Berta at the rock to the eastward of the cape, and also from the inner end of the rock at a rise at its outer end; a red flag is hoisted at the firing stations, and at the outer

*General charts 3219, 157, 1780, 2158a, 449.*





*C. Berla.* *C. Certo.* *C. delle Mele lighthouse, bearing 250° true, about 2 miles.*

## Capo delle Mele.



*C. di Noli.* *Noli.* *Isolato di Bergoggi.*

*C. di Vado.*

## Vado.

*Forte S. Lorenzo bearing 258° true, about 1½ miles.* *Vado.*





*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

end of the rock during the practice, when vessels should pass some distance from the cape.

**The coast** from Capo Berta trends north-eastward  $5\frac{3}{4}$  miles to Capo delle Mele. Pizzo d'Evigno,  $5\frac{1}{2}$  miles north-westward, is 3,245 feet high. Diano Marina village extends along the beach north-eastward of the cape; it was the centre of the great earthquake of 1887, and has since been rebuilt. Diano Castello, about  $1\frac{1}{4}$  miles inland on a hill, 443 feet high, is large, and has a noticeable white church with a campanile.

**Diano roadstead**, off the village, affords anchorage in 8 fathoms water, sand bottom, with the campanile bearing about  $309^\circ$  true, and half a mile from the shore; the anchorage is open except from the north-westward.

**Rovero (Rovere)** village, on a little hill about 2 cables inland, has a white campanile with a small red cupola. Cervo village is on a little conical hill near the sea, and at its highest point is a church with a campanile; the railway viaduct below the village is of masonry with six arches. Seaward of the western end of the viaduct is a rock with 6 feet water.

**Capo Cervo**, immediately eastward of Cervo village, is steep and rocky; there is about half of a very old tower on it. Rollo and Andora villages are on the coast between Capo Cervo and Capo delle Mele, a river flowing between them to the sea.

**Capo delle Mele** is steep, rounded, covered with olive trees, and 725 feet high. Monte Chiappa,  $2\frac{1}{2}$  miles westward of the cape, is 1,775 feet high. View at page 246.

**LIGHT.**—A light is exhibited, at 308 feet above high water, from an octagonal tower, with two galleries, 82 feet high, adjoining a three-storied yellow house, situated on the cape about one-third of its height from the summit.

**Signal station.**—There is a semaphore (*Lat.  $43^\circ 58' N.$ , Long.  $8^\circ 10' E.$* ) at the old Capella di Sant' Antonio on Capo delle Mele, 750 feet above high water. Vessels bound to Genoa making their numbers, by day, to the semaphore, and then hoisting International code flag C., are reported by telegraph to San Benigno semaphore, and thence by telephone to the Consorzio Autonomo di Genoa (established to receive messages concerning the movements of shipping).



Capo delle Mele lighthouse.

*General charts 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

**Storm signals** (page 17) are exhibited at the semaphore.

**Currents.**—The currents off the cape are strong, and usually set westward.

- 5 **GULF of GENOA (Golfo di Genova)** (ancient Mare Ligusticum), the entrance to which is between Capo delle Mele and Isoletto Tino, about 73 miles to the eastward, extends 27 miles to the northward, the Ligurian Alps and Apennine ranges approaching to from 5 to 18 miles of the shores, which are rocky and precipitous, with  
10 well-cultivated valleys between the mountains, varied by a succession of towns and villages.

- The territory westward of Genoa is known as Riviera di Ponente; that between Genoa and Spezia, Riviera di Levante. There are, besides the Port of Genoa (near the head of the gulf), safe harbours  
15 for sailing vessels and several good roadsteads.

- Soundings.**—The water in the Gulf of Genoa is deep, the 5-fathom line being about 2 cables from the shore, and the 10-fathom line three-quarters of a mile; 15 miles from the head of the gulf and 2 miles from the western shore, the depths increase abruptly from  
20 100 to 300 fathoms, the bottom generally being mud.

**The coast** from Capo delle Mele (*Lat. 43° 57' N., Long. 8° 10' E.*) curves north-westward and north-north-eastward, 3½ miles, to Capo San Croce, and is a sandy beach, which is clear, except a rock about 1½ cables off-shore one mile north-westward of the cape.

- 25 **Laigueglia**, a small town on the beach 1½ miles north-north-westward of Capo delle Mele, has a white church with noticeable twin campaniles.

**Light.**—A light is exhibited from a projection of the beach at Laigueglia for the use of fishing boats.

- 30 **Alassio town** extends along the beach about 2 miles northward of Laigueglia, and has some large buildings, amongst which is a church with a campanile; it has a short mole, with an iron landing stage at its head, and is a rising winter resort. There is a civil hospital with 20 beds, which will receive foreigners in urgent cases.  
35 The population is about 4,200.

**Monte Madonna della Guardia**, 1½ miles westward of Alassio, is 1,932 feet high, and on it is a conspicuous santuario; on a lower hill, south-westward of it, is a brown cylindrical tower.

- Anchorage.**—There is open anchorage off the coast between  
40 Capo delle Mele and Capo San Croce in any convenient depth; the best berth is with Alassio church in line with Santuario della Madonna, in 15 fathoms, sand and mud bottom. Near the land

*General charts 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

between Capo delle Mele and Capo San Croce, a counter current sets north-eastward, so vessels do not always ride head to wind.

**Capo San Croce** is the extreme of a little pyramidal point of yellow rock surmounted by a mark. 5

**The coast** from Capo San Croce trends north-eastward about 2 miles to Capo Lena, and is a succession of creeks and small rocky points. On the slope of Monte Brignone, and on the coast north-eastward of the cape, is a conspicuous wall which supports a road.

**Capo Lena** (*Lat. 44° 2' N., Long. 8° 14' E.*) is salient, rounded, low, and sandy; it is formed by deposits from Fiume Centa, which flows through it; in the locality of the cape it is necessary to keep 2 cables from the coast, and more after heavy rain and strong winds, which alter the banks at the entrance to the river. 10

**Isola Gallinara**, three-quarters of a mile southward of Capo Lena, is about 3 cables in extent, 285 feet high, and there is a tower on its summit. There are depths of 6 and 7 fathoms in mid-channel between the island and the coast, but a spit with 3½ fathoms water extends about 2 cables northward from the island. Landing can be effected in a little creek on the north-west side of the island, from which a footpath leads to the summit. There is anchorage in 7 fathoms, sand, about 2 cables westward of the west point of the island, with the tower bearing about 135° true. 15  
20

**Albenga** (Roman Albium Ingannum), half a mile inland, on the left bank of Fiume Centa, a branch of Fiume Arosia, is an old town, situated in a very fertile and wooded but unhealthy plain; it has several remains of antiquity, a Gothic cathedral, and some old castles. Wine, oil, vegetables, fruits, and flowers are produced in the locality. The population was 7,052 in 1911. 25

**The coast** from Capo Lena trends northward and north-eastward 14 miles to Capo di Noli, forming a bay 2½ miles deep; it is encircled by a range of mountains, Monte Carmo, 4,557 feet high, the summit, being midway between the above-mentioned capes and 4½ miles inland. Several streams flow into the bay, and there are many villages and towers on the shore and heights. 30  
35

The entrance to Fiume Arosia is 1½ miles northward of Capo Lena; the freshets of the river are often very destructive. Ceriale and Borghetto villages, between which are the peaks of Monte Croce, 1,781 feet high, are, respectively, 2 and 3 miles northward of the mouth of the river. Castello Borelli, on the slope of the mount, is surmounted by a conspicuous, high, and slender quadrangular tower of reddish colour. Fiume Toirano flows into the sea close northward of Borghetto village, and about one mile northward of the river is Loano 40

*General charts 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

town, at the mouth of Fiume Nimbardo; it has a cathedral with a large dark cupola.

- Between Loano and Capo di Finale, 4 miles north-eastward, are  
5 Pietra Ligure and Borgio villages.

**Anchorage.**—There is open anchorage about half a mile off-shore, seaward of these villages, in from 14 to 22 fathoms, muddy sand.

- Monte Caprazoppa**, eastward of Borgio village, is 955 feet  
10 high, and has some reddish yellow patches on it, besides a large low sandy patch, westward of Capo di Finale.

**Capo di Finale**, but little salient, is steep and clear; on its south-eastern extreme is an old tower, 269 feet above high water.

- Finalmarina** is situated between two torrents about half a mile  
15 eastward of the cape, and Finalborgo about 8 cables inland. There is a hill, 876 feet high, about one mile inland and between the streams, and the country is thickly wooded in places, and dotted with numerous dwellings. There is open anchorage in 10 fathoms water, sand bottom, south-eastward of Finalmarina, but it must be left on  
20 winds from seaward setting in. On Punta San Donato,  $1\frac{1}{2}$  miles eastward from Capo di Finale, is a tower, and on Punta Crena, nearly 2 miles further eastward, which is steep and rocky, is Varigotti village, with a tower and battery.

- Along the coast westward of the battery is a sandy beach and  
25 several off-lying rocks, but there are depths of 5 fathoms  $1\frac{1}{2}$  cables from it.

**Capo di Noli** (*Lat. 44° 12' N., Long. 8° 25' E.*) is high, steep, bold-to, and on the summit is the ruin of a chapel; there are depths of more than 200 fathoms one mile to the south-eastward.

- Signal station.**—There is a semaphore 905 feet above high  
30 water, on Capo di Noli, about 3 cables south-westward of its eastern extreme.

- The coast** from Capo di Noli curves north-north-eastward,  
2½ miles, to the wooded Punta del Majolo; it is a clear sandy beach.  
35 About mid-way between is Torrente Cercallo, and on the coast on either side are Noli and Spotorno villages; Noli has three reddish square towers. Voze (Voze) village and church are on the land, 712 feet high, north-westward of Noli. Spotorno has a yellow campanile, which shows between the houses, and behind it is an old square fort.  
40 Spotorno is considered to be a fortified port. See Regulations, page 30.

**Isolotto di Bergeggi** lies southward of Punta del Majolo, and between is a channel about 2 cables wide, with a depth of

*General charts 157, 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

5 fathoms water. The islet is bold, 207 feet high, wooded, and on its summit is a church in ruins.

**The coast** from Punta del Majolo trends northward nearly 1½ miles to Capo di Vado. Punta Prodani is a little northward of Punta del Majolo, and Torre di Ere, on a hill between the points, is 417 feet above high water, square, with its upper part red. Two rocks above water project seaward from Punta del Malojo; the coast, which is steep and inaccessible, is otherwise bold to Capo di Vado; Bergeggi village is scattered on the green slope of a hill a little northward of Punta Prodani, and westward of it are the wooded slopes of Monte Mao, 1,444 feet high, and Monte Sant' Elena, 1,138 feet high.

*Plan, Vado, on chart 157.*

**Capo di Vado** (Lat. 44° 15' N., Long. 8° 27' E.) has some large caves on its eastern extreme, which give this part of the cape a whitish appearance, and on its summit, 528 feet high, are the ruins of an old fort; with the exception of some rocks close in it is steep-to, with depths of 100 fathoms at the distance of a mile. View at page 246.

**LIGHT.**—A light is exhibited, at 142 feet above high water, from an octagonal tower, 114 feet high, with a three-storied dwelling attached, both yellow, situated near the east extreme of Capo di Vado.

**Mole.**—A mole extends about 1½ cables east-north-eastward and northward from Capo di Vado, and affords anchorage for small craft on its northern side.



**The coast** from Capo di Vado trends north-westward one mile and then turns northward and north-eastward 3¼ miles to Punta Sant' Erasmo, forming a bay one mile in depth, on the western shore of which is the small town of Vado at the mouth of Torrente Segno. Forte di Vado is on the slope of a hill 2 cables north-westward of the root of the mole, and about 2 cables further north-westward is the suburb of Porto di Vado. The coast for about 2 cables north-westward of the root of the mole is being embanked. Forte San Lorenzo, about 1½ cables southward of Torrente Segno mouth, is old, small, low, and dark.

**Light.**—A light is exhibited, at 56 feet above high water, from a standard on a small green house on the eastern bastion of Forte San Lorenzo.

*General charts 157, 1780, 2158a, 449.*

*Plan, Vado, on chart 157. Var. 10° 0' W.*

**Anchorage.**—There is anchorage 3 cables off the coast, between Forti Vado and San Lorenzo, in about 11 fathoms water, mud bottom and good holding ground. A considerable swell is sent into the bay by south-easterly winds, and there are heavy squalls off the land with north-westerly winds.

**Fortified port.**—Vado is considered to be a fortified port. See Regulations, page 30.

*Chart 157, San Remo to Cape Cavallo.*

**The coast** between Vado and Punta Sant' Erasmo (*Lat. 44° 18' N., Long. 8° 29' E.*) is high, and on it are Zinola village, situated northward of the mouth of Torrente Quiliano, and Fornaci village, situated south-westward of the mouth of Torrente Letimbro; the entrance to this river has been channelled, and close off it is a small rock above water.

*Plan, Port Savona, on chart 157.*

**PORTO DI SAVONA** is within two moles; a mole extends about 2 cables north-north-eastward from Punta Sant' Erasmo, and is continued about 1½ cables in the same direction by Molo di Traversa, from the eastern extreme of which Molo Frangionde extends north-eastward about three-quarters of a cable, with an arm extending about 25 yards north-north-westward from its outer end. Molo delle Casse extends about 1¾ cables east-south-eastward from the inner part of Molo di Traversa.

Molo Tramontana extends about three-quarters of a cable south-eastward from a rocky bluff on the north shore.

The port is divided into two parts, the old port, of which Darsena Vecchia is the head, along the north-western shore, and Darsena Vittorio Emanuele, between the outer mole and a projection extending about 2 cables northward into the southern part of the port, the north-eastern part of which is Calata del Carbone. The outer harbour is northward of Darsena Vittoria Emanuele.

**Depths.**—The entrance between Molo di Traversa and Molo Tramontana is 180 yards wide, and has a depth of 4¾ fathoms except near the moles, where the depths are rather less; it is open to the north-eastward.

There are depths of from 4 to 5½ fathoms in the outer harbour, of from 3½ to 5½ fathoms in Darsena Vittorio Emanuele, but 2¾ fathoms along Calata Orientale on its eastern side, and of from 3¼ to 4½ fathoms in Darsena Vecchia, but shoal along the quays.

**LIGHTS.**—A light is exhibited, at 82 feet above high water, from a metal openwork tower, on a masonry base, on the head of Molo delle Casse.

*General charts 157, 1780, 2158z, 449.*

*Plan, Port Savona, on chart 157. Var. 10° 0' W.*

A light is exhibited, at 36 feet above high water, from a red iron circular turret, 21 feet high, on the head of Molo Frangionde.

A light is exhibited, at 33 feet above high water, from an iron standard, on a green hut, 22 feet high, on the head of Molo Tramontana. 5

**Darsena Vecchia** (*Lat. 44° 18' N., Long. 8° 29' E.*) is about 200 yards long north-west and south-east, and 100 yards wide, the entrance being about 45 yards wide. Torre Leon Pancaldo, the pilot's office, is northward of the entrance, and about 150 yards further northward is the Harbour master's office, from which a rocky shoal extends about 30 yards, and continues along the north shore of the outer harbour. 10

**Darsena Vittorio Emanuele** is about 300 yards long north and south, and some 200 yards wide, the entrance being 70 yards wide. Calata del Carbone, on the north-western side, is reserved for colliers; it has a depth of  $3\frac{3}{4}$  fathoms alongside. Railways extend along the surrounding quays, which are fitted with hydraulic and electric machinery. In the north-eastern corner are petroleum tanks, and there is a railway station and a Custom house on the southern side. 15

**Calata del Carbone.—Caution.**—From the north-west side of the wharf three mooring chains extend to the mainland opposite, and anchorage should be avoided in the vicinity. The point where each chain commences is marked by two vertical stripes, one black and the other white, close together on the wharf. 20

**Harbour works.—Lights.**—Works are in progress (1915) for extending the quay at the inner part of Molo Frangionde, and a light is shown temporarily from a stone pillar about 87 yards north-westward from the light-turret on the head of the mole. A light-buoy, exhibiting a red flashing light every eleven and a half seconds, flash three and a half seconds, also marks the works. 25 30

Works are also in progress for the construction of a quay north-eastward of the Harbour master's office, and are marked by red lights placed on piles.

**Pilotage.**—Pilots take charge of vessels at least 2 miles from Molo delle Casse. The pilotage charge is 6 centesimi per ton register, with a minimum charge of 15 lire and a maximum of 150 lire. There is also a charge of 7·5 lire, entering and leaving, when the pilot has to use a steam launch. 35

**Quarantine.**—Vessels declared infected with cholera, plague, &c., are now disinfected at Savona. 40

**Fortified port.**—Savona is a fortified port. See Regulations, page 30.

*General charts 157, 1780, 2158a, 449.*



*Plan, Port Savona, on chart 157. Var. 10° 0' W.*

**The town** of Savona (*Lat. 44° 19' N., Long. 8° 29' E.*) is situated on flat ground eastward of the mouth of Torrente Letimbro, and is the most important town of Liguria, except Genoa. It consists of an old  
 5 and a new part, the latter having wide straight streets which cross each other at right angles. Convento di San Giacomo, in the north-eastern part of the town, and a convent a little westward of it, are noticeable buildings. The numerous factory chimneys and blackened roofs of the sheds, the old fort to the southward of the town, and the  
 10 white cylindrical petroleum tanks on the inner part of Molo delle Casse, are conspicuous. The population was 56,829 in 1913.

A British Consul is stationed at Savona.

**Trade.**—The principal imports are benzine, petroleum, iron, mineral phosphates, coal, and grain, and the exports are candied fruits,  
 15 wood, and iron and steel rails. In 1913 the imports amounted to 1,487,290 tons, including 1,246,780 tons of coal, and the exports to 20,180 tons.

There are manufactories of iron, firebricks, bottles, and large works for building electric locomotives, &c.

**Shipping.**—In 1913, 400 steam vessels, of 685,749 tons, and  
 20 120 sailing vessels, of 23,974 tons, entered the port.

**Coal.**—There are usually about 36,000 tons of coal in stock. The coal is piled on the quay, where there is a depth of 23 to 24 feet, and about 2,000 tons can be put on board in 24 hours.

25 There are 130 lighters, averaging 140 tons each, and 5 tugs, in the port.

**Supplies** are plentiful. Water is obtained from pipes on the quay, price 5d. per ton, plus 4s. 10d. for use of hose.

**Repairs** to hull, engines, and boilers can be effected.

30 **Hospital.**—The civil hospital of San Paolo, with 173 beds, receives foreigners; the charge is 1·8 lire for medical cases and 2·8 lire for surgical cases, daily, paid for one month in advance; the charge for any days of the month not spent in hospital is returned.

**Communication.**—There is railway communication with Nice  
 35 and Genoa and telegraphic and telephonic communication.

*Chart 157, San Remo to Cape Cavallo.*

**The coast** from Savona trends east-north-eastward 13 miles to Voltri, near the head of the gulf; it is high, steep, and rocky; several streams, small unless swollen by heavy rains, flow into the sea; villages  
 40 with apparently handsome dwellings are situated on the high and wooded country inland. Albissola village, about 2 miles north-eastward of Savona, is divided into two parts by Torrente Sansobbia; one

*General charts 157, 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

is on the beach westward of the river mouth, and the other on high ground about half a mile inland. There are several scattered rocks, within 2 cables of the shore, between Savona and the village, off which is a sandy beach with shoal water extending 3 cables seawards. Torre d' Albissola, 138 feet high, is on the edge of the rocky Capo d' Albissola, a little eastward of the village, but it is not conspicuous from seaward. 5

**Punta di Celle** (*Lat. 44° 20' N., Long. 8° 32' E.*), about a mile eastward of Torre d' Albissola, is a rocky mass. Celle village is situated northward of the point, and eastward of it is a villa which has the appearance of a castle. A torrent runs through the middle of the village, and is crossed by a bridge with four arches, noticeable from seaward. 10

There is anchorage in front of the village, 3 or 4 cables off-shore, in about 9 fathoms water, sand and weeds bottom, good holding ground. 15

**Punta di Varazze**, three-quarters of a mile eastward of Celle village, is the western extreme of a slight indentation of the coast, named Spiaggia dell' Arenetta, in the middle of which, on the sandy beach, is the town of Varazze, and somewhat higher, the white and conspicuous building of the Opera Pia Bergamasca. 20

**Varazze** is principally situated westward of the mouth of Torrente Teiro, and westward of it are the hills of Santa Croce (Crocetta) and Cantalupo. The industries are building coasting craft, cotton spinning, and manufacture of paper; wine, oil, corn, and vegetables are produced. The population was 9,815 in 1911. 25

**Anchorage** can be obtained, during off-shore winds, in front of the town in about 10 fathoms water, sand bottom.

**The coast** between Varazze and Cogoleto,  $3\frac{1}{4}$  miles to the eastward, is rocky, and the rocks near the sea are whitish near Varazze, afterwards becoming dark coloured. On the point half a mile eastward of Varazze is Torre di Mola, and about half a mile northward of it is Monte Grosso, 1,319 feet high, on the dark wooded summit of which is the little Santuario della Guardia di Varazze, appearing from seaward, with a favourable light, as a white point. 30

Punta Invrea is  $1\frac{1}{2}$  miles eastward of Torre di Mola, and on a steep wooded summit westward of it is a fine white villa. 35

**Cogoleto village** is one mile north-eastward of Punta Invrea, and between them is a conspicuous factory. The church, on the beach at the eastern end of the town, is white. 40

**Spit.**—A spit, with  $2\frac{1}{4}$  fathoms water, extends nearly 3 cables off the western part of Cogoleto village; here the 5-fathom line is about  $3\frac{1}{2}$  cables off-shore.

*General charts 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 10° 0' W.*

**Anchorage** can be obtained off the eastern part of the village, eastward of the spit just mentioned; there are depths of  $5\frac{1}{2}$  fathoms about 2 cables off-shore.

- 5 **Capo Arenzano** (*Lat.  $44^{\circ} 24'$  N., Long.  $8^{\circ} 41'$  E.*), 2 miles eastward of Cogoleto, is round, with a flat top, 262 feet high, and covered thickly with dark trees; it is bordered by rocks which do not extend more than a cable off-shore. Arenzano village is on the beach half a mile northward of the cape; it has a noticeable cathedral, with twin  
10 campaniles at the sides of its eastern front. There is anchorage off the village in about 7 fathoms water, sand and weeds; the 5-fathom line is about half a mile off-shore.

- The coast** from Arenzano trends east-north-eastward 3 miles to Voltri, and is bordered by rocks, which do not extend off more than  
15 a cable. Vesina and Crevasi villages lie between Arenzano and Voltri.

- Voltri town** is situated at the western end of the line of towns and villages which extend westward from Genoa. It is divided into two parts, Sant' Erasmo, the western and more conspicuous from its  
20 two campaniles, lying between Torrente Cerusa and Leiro, and Sant' Ambrogio to the eastward of the Leiro. The principal industries are cotton spinning and iron and steel work. The population was 15,688 in 1911.

- The torrents, when in flood, bring down much silt, which forms  
25 temporary banks off their entrances; the banks are dispersed by heavy weather and sea.

**Anchorage.**—There is anchorage off Voltri in about 9 fathoms water. Northerly winds here, owing to the formation of the mountains, are very violent.

- 30 **The coast** from Voltri trends eastward about 7 miles to Capo del Faro; it is mountainous, and the 5-fathom line is about 3 cables off it.

- Prà village** is about  $1\frac{3}{4}$  miles eastward of Voltri; the population was 7,651 in 1911; the principal industries are the manufacture of  
35 rope, paper, and macaroni; wine, oil, fruit, and vegetables are produced.

**Light.**—A light is exhibited from an iron standard on the beach at Prà.

*Plan, Approaches to Genoa, on 1461.*

- 40 **The coast.**—Nearly a mile eastward of Prà light is a rocky point, surmounted by a low and dark fort.

**Scoglio Pria Poula**, about one cable off the point just mentioned, is a small and blackish islet, which does not show well against

*General charts 157, 1789, 2158a, 449.*

*Plan, Approaches to Genoa, on 1461. Var. 9° 50' W.*

the rocky coast. A rock with 3 feet water lies about 100 yards southward of it. There is a depth of  $2\frac{3}{4}$  fathoms in the channel between the islet and the point.

**Pegli village** (*Lat. 44° 25' N., Long. 8° 49' E.*) lies eastward of the point just mentioned, and has a church with a white campanile. Torre Pallavicini, red, cylindrical, and 443 feet above high water, stands on a wooded hill northward of the church. 5

**Light.**—A light is exhibited, at 23 feet above high water, from an iron standard on the shore, eastward of a grey castellated house near the western end of Pegli village. 10

**Torrente Varena**, eastward of Pegli and between it and Mul-tedo village, is crossed by a masonry bridge with five arches.

**Sestri Ponente**, about  $1\frac{1}{2}$  miles eastward of Pegli, is situated within a long and straight beach, at the eastern end of which is a small rocky peninsula surmounted by the noticeable Castello Raggio. Three short iron piers, furnished with rails, and cranes on their heads, project from the beach; there are depths of 13 and 15 feet at their heads, off which there are generally buoys for the use of the coasters with materials. The principal industry is shipbuilding, carried on at Ansaldo and Odero yards and foundries. 15 20

The population was 21,607 in 1911.

Bric del Gazo, a conical mountain, 1,381 feet high, is about  $1\frac{1}{2}$  miles northward of Sestri Ponente; it is surmounted by a conspicuous sanctuary. 25

**Cornigliano**, immediately eastward of Castello Raggio, has several chimneys, one of which is very high and conspicuous.

Torre Moiselli or Spronati, 587 feet, and Campanile di Coronata, 443 feet above high water, and of a dirty white colour, are northward of the village. 30

There are several short moles off the village, but they are unsuitable for landing.

Torrente Polcevera separates Cornigliano from Sampier d'Arena, and is crossed, near its mouth, by a long iron bridge.

**Sampier d'Arena (San Pier d'Arena)** is noticeable by the great number of chimneys, the large workshops, and the houses blackened by smoke. Campanile di Belvedere, on a hill northward of the town, is 420 feet above high water, and red in colour. 35

The principal industries are shipbuilding, iron works and foundries, soap manufacture, and making extract of logwood. 40

The population was 76,500 in 1911.

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

The sea in front of the town is sometimes coloured red by the discharge of refuse from the works for preparing extract of logwood.

**Capo del Faro** (San Benigno) is a small rocky projection, and near its extreme point is a battery, northward of which, and about a cable from the point, is a lighthouse on high rocky ground. Further northward are the large red barracks of San Benigno.

**Signal station.**—There is a semaphore, 305 feet above high water, on the roof of the upper barrack of San Benigno, painted black and white in chequers. The station is open day and night.

**Storm signals** (page 17) are exhibited at the semaphore.

**PORT OF GENOA (Porto di Genova).**—Punta San Giacomina, near which is Batteria della Stella and lighthouse, lies  $1\frac{4}{10}$  miles east-south-eastward from Capo del Faro, and the Bay of Genoa extends about 8 cables north-eastward between them.

The port is the bay enclosed by Molo Nuovo and Molo Duca di Galliera on the west, and Molo Giano on the east. Molo Nuovo extends from the western side of the bay, a little northward of Capo del Faro, half a mile east-south-eastward, then  $3\frac{1}{2}$  cables southward, and  $4\frac{1}{2}$  cables south-eastward, the last two parts being called Molo Duca di Galliera or Lucedio. The mole is being extended about one cable south-eastward.

Molo Giano extends 3 cables west-south-westward from the shore 3 cables north-westward of Punta San Giacomina.

Molo Vecchio extends about 4 cables westward from Punta Malapaga, which is situated about 4 cables northward from the root of Molo Giano.

The entrance (*Lat. 44° 24' N., Long. 8° 56' E.*) to the port, between Molo Duca di Galliera and Molo Giano, is 3 cables wide, and the passage between Ponte Pietro Paleocapa, at the eastern end of Molo Nuovo, and Molo Vecchio, is  $1\frac{1}{2}$  cables wide. The port is easy of access in any weather for steam vessels, and tugs look out for sailing vessels.

The part of the port situated between lines joining the heads of Molo Duca di Galliera and Molo Giano, and Ponte Pietro Paleocapa and the head of Molo Vecchio, is known as the Avamporto or Porto Vittorio Emanuele, and the part inside a line joining Ponte Pietro Paleocapa and the head of Molo Vecchio is known as the Porto.

**Depths.**—There are general depths of from 11 to 6 fathoms in the Avamporto, and of from 6 to  $4\frac{1}{4}$  fathoms in the Porto. Some stone blocks, with about 6 feet water, exist in the inner angle of Molo Duca di Galliera.

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

**Calate.**—The Porto is surrounded by calate, from which project about 12 short moles or ponti, with hydraulic cranes, railways, warehouses, &c. There is also a calata on the south side of Molo Vecchio. Particularly noticeable are the Silos granary, between Ponti Federico Guglielmo and Adolfo Parodi, for discharging grain, and the apparatus for discharging coal on Ponte Paleocapa. The total length of calate is 13,675 yards. 5

The petroleum stores are near the inner end of Molo Nuovo. The darsena at the head of the Porto has depths of from 3 to 3 $\frac{3}{4}$  fathoms. The Custom house is a little inshore between Ponti Federico Guglielmo and Adolfo Parodi; the Health office is on the north-eastern side of the Porto, and the lazaretto is on the eastern end of Molo Nuovo. 10

**LIGHTS.—Capo del Faro.**—A light is exhibited, at 385 feet above high water, from a square tower, with two galleries, over a yellow house, 249 feet high, about a cable northward of the extreme of Capo del Faro. This lighthouse is known also as Lanterna di Genova. 15

**Batteria della Stella.**—A light is exhibited, at 92 feet above high water, from a white cylindrical tower, 59 feet high, on the western angle of Batteria della Stella, Punta San Giacomo (Lat. 44° 24' N., Long. 8° 56' E.). 20



Capo del Faro lighthouse.



Batteria della Stella lighthouse.

**Molo Duca di Galliera.**—A light is exhibited, at 72 feet above high water, from a red iron pyramidal framework, 62 feet high, near the head of Molo Duca di Galliera. 25

**Molo Giano.**—A light is exhibited, at 26 feet above high water, from an iron hut on a brick base, near the head of Molo Giano.

**Ponte Pietro Paleocapa.**—A light is exhibited, at 28 feet

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

above high water, from a turret at the eastern angle of a house on the north-eastern extreme of Ponte Pietro Paleocapa.

**Molo Vecchio.**—A light is exhibited, at 28 feet above high water, from a masonry hut on the western extreme of Molo Vecchio.

**Light-buoy.**—A cylindrical light-buoy, surmounted by a conical frame, is moored about  $1\frac{8}{10}$  cables south-eastward of, and in line with, the southern part of Molo Duca di Galliera; it exhibits a *red occulting* light *every twelve seconds*, eclipse *two seconds*. The buoy marks the outer end of the works in progress for extending the mole, and vessels must pass eastward of it.

**Buoys.**—About 2 cables west-north-westward from the angle of Molo Duca di Galliera are four mooring buoys, and other red barrel-shaped buoys, placed in pairs, are moored along the line of the mole constructing for the new basin (page 262).

Two mooring buoys are placed about 50 feet off the head of Molo Duca di Galliera, and will be moved as the work of extension progresses.

There are several mooring buoys in the port, belonging mostly to the steamship companies. A buoy at which vessels can swing to adjust compasses is moored about 2 cables south-eastward of the head of Molo Giano (*Lat. 44° 24' N., Long. 8° 56' E.*).

**Navigation.—Caution.**—The Italian regulations for navigation in the Port of Genoa are that steam vessels are to keep to that side of the fairway or mid-channel which lies on the port side of such vessel. This is contrary to Article 25 of the International regulations for preventing collisions at sea.

**Directions.**—When approaching the Port of Genoa the chain of the Apennines, covered with snow, is first sighted, and then Monte Antola, 5,243 feet high, which lies 13 miles north-eastward of the port, Capo de Faro lighthouse, and the town. The heads of the moles should be given a sufficient berth. The current generally sets westward. At night, especially with strong northerly winds, it is not prudent to enter the Porto; vessels then can anchor in the Avamporto.

The speed of vessels in the port is not to exceed 5 knots.

Steam vessels approaching the port, when within 2 miles of Molo Duca di Galliera lighthouse, should keep Capo del Faro lighthouse in line with Molo Duca di Galliera lighthouse, and not go to the northward of this line till near the light-buoy, and those leaving the port should keep northward of the line, observing that the 5-fathom line off the mouth of Torrente Bisagno is about  $2\frac{1}{2}$  cables off-shore.

Steam vessels entering steer from half a cable eastward of the light-buoy marking the extreme of the works in progress for extending Molo

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

Duca di Galliera, direct, to leave Ponte Pietro Paleocapa about half a cable on the port hand, and those leaving steer, from about half a cable off the head of Molo Vecchio, direct, to leave the head of Molo Giano about half a cable on the port hand.

5

The space in the harbour available for navigation is very limited, and some vessels, secured alongside the quays, project beyond them. These vessels are moored with their sterns to the heads of the moles, whilst there are frequently other vessels inside the line of the moles, the stern of each outside vessel being secured to the cables of the vessel next inside.

10

**Anchorage and berths.**—Large vessels sometimes anchor outside the harbour, in from 15 to 20 fathoms water, but it is not recommended to do so.

The berths to be taken by vessels are determined by the Captain of the Port, and they are divided into zones, according to the cargoes.

15

The Calate of Molo Nuovo (*Lat. 44° 24' N., Long. 8° 55' E.*), Passo Nuovo, and San Benigno, or those from Ponte Paleocapa to Ponte Biagio Assereto inclusive, are reserved for vessels with coal, except Ponte Caracciolo, which is used for vessels with salt, petroleum, timber, and old iron. Ponte Cristoforo Colombo is used by vessels with cotton.

20

Ponte Andrea Doria is used by vessels shipping goods for export, and also by local steam vessels.

Steam vessels bound to America with emigrants lie between Calate Zingari and Santa Limbania, and go alongside Ponte Federico Guglielmo to land or embark passengers.

25

Ponte Adolfo Parodi is used by vessels with cereals, and Ponte Francesco Morosini by vessels with wine.

Molo Duca di Galliera is reserved for vessels of war, and also for vessels in quarantine, as well as steam vessels in ballast about to sail, to stop temporarily. There are 13 berths for large vessels on the inner side of the mole, marked by large numerals; there is a bollard at each berth and one between. Vessels let go an anchor and haul the stern to the bollard selected.

30

Molo Giano is used for vessels with infectious disease on board, or with inflammable materials.

35

The mole extending 2 cables north-westward from near the middle of Molo Giano, and eastward of which are the dry docks, is used for vessels under repair or re-fitting, and pleasure steamers.

**Pilots** board vessels flying the pilot signal at a distance of at least one mile from the head of Molo Duca di Galliera. The pilot station is on Molo Giano, where there is also a lookout tower. The employment of a pilot by H.M. Ships is optional, and the offer of a pilot's services should be refused, as they are not required. The pilotage

40

*General charts 157, 1780, 2158a, 449.*



*Plan, Genoa, on 1461. Var. 9° 50' W.*

charge is 8 centesimi per net ton under 1,000 tons; 5 centesimi per net ton from 1,000 to 2,000 tons; and 3 centesimi per net ton over 2,000 tons, with a minimum charge of 32 lire, and a maximum charge of  
 5 160 lire. At night an extra charge of 10 lire will be made for vessels under 2,000 tons, and of 20 lire for vessels over 2,000 tons.

The above charges are reduced to one-half when, by the wish of the captain, or from delay on the part of the pilot, except in case of *force majeure*, the vessel is only piloted from within Molo Duca di Galliera;  
 10 and also, when on leaving, the pilot is taken who piloted the vessel into the harbour.

The charge for moving vessels in the port is one-third of the pilotage charge.

**Port offices.**—The head-quarters of the Captain of the Port are  
 15 in the large Custom house building, situated within and between Ponti Federico Guglielmo and Adolfo Parodi (*Lat. 44° 25' N., Long. 8° 55' E.*). There is a Port office, especially for technical matters and for granting *pratique* to vessels, on Ponte Francesco Morosini, and two others on Ponte Federico Guglielmo and Calata Passo Nuovo, respectively.

20 **Caution.—Heavy gun firing** sometimes takes place from Forte di San Benigno, Forte Angeli, Forte Vagno, and Forte San Giuliano, when the danger zone extends about 4 miles seawards from them.

**Harbour works.**—A mole, under construction, is to extend  
 25 1½ miles west-north-westward from the elbow of Molo Duca di Galliera, and thence northward to the shore; the basin it will enclose will have an area of about 96 acres, with about 1,476 yards of quays, and an intended depth of 6½ fathoms. There will be an entrance through the mole immediately northward of the elbow, and another southward of  
 30 Capo del Faro, each 328 feet wide.

**Tugs** frequently go out to sailing vessels without waiting for a signal, and there are also tugs in the port to assist vessels in mooring. An agreement should be made as to the charge before engaging one.

**Landing** is permitted anywhere if without luggage; the best  
 35 places are at Ponte Andrea Doria and Ponte Federico Guglielmo, where passengers are landed.

**Adjustment of compasses.**—Vessels adjusting compasses at the buoy south-eastward of the head of Molo Giano should swing by the aid of a tug. Portofino semaphore is the best object for the true  
 40 bearing.

**Port regulations.**—The following regulations are selected from the port bye-laws:—

From 1st November to 31st March vessels within the port must moor

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

with two anchors, and from 1st April to 31st October one anchor only is required.

Vessels loading or unloading cotton, jute, and other inflammable cargo must have their boiler and galley funnels covered with a metal net, the meshes of which are not larger than those of one on view at the Port office at Ponte Morosoni; on board such vessels lighting fires and smoking is strictly prohibited.

Vessels with petroleum, tar, benzine, naphtha, and other inflammables on board, are to anchor, on their arrival, in the Avamporto, where, subject to the permission of the Captain of the Port, they may discharge their cargoes, provided that not more than 100 cans of 100 litres (22 gallons) each are landed at a time. In other cases they must go through the necessary forms at the office of the Captain of the Port, in order to obtain permission for going alongside Calata Passo Nuovo.

Petroleum tank vessels and other vessels with inflammables on board, before going to the berth assigned to them, must put out all fires, and make arrangements for their safe and rapid discharge; such vessel must fly a red flag at the main masthead.

**Winds.**—The port (*Lat. 44° 24' N., Long. 8° 54' E.*) is well sheltered, and only during the bad weather of the scirocco is there any swell, which sometimes prevents work from being carried out at the calate and ponti. Northerly winds are troublesome, especially in winter, when heavy squalls descend from the mountain gullies, accompanied at times by rain and snow. The libeccio (south-west wind) rarely blows with violence at the head of the gulf, but sometimes it is extremely violent; in November, 1898, it caused great damage to the mole.

Northerly winds, especially in winter, are strong in the port, and attain their greatest force at one or 2 miles from the coast, causing a rough sea. With southerly winds, and in some cases with the scirocco, the water in the port rises above its ordinary level; this indicates bad weather outside, and it frequently happens that whilst the scirocco is blowing strongly off Portofino, or the libeccio off Capo delle Mele, there are calms or northerly winds at Genoa, accompanied by a low barometer.

The summit of Monte di Portofino covered with clouds indicates the probability of southerly winds; the summit uncovered and clear indicates fine weather and northerly winds, even if the appearance is dark and threatening to the northward of Genoa. When the summits of the mountains of Voltri and Genoa are covered with clouds, forming thick strata, northerly winds, possibly strong, are likely to set in after a short interval. Local mariners call this form of cloud "garo."

Meteorological table, page 464.

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

**Currents.**—Outside the port the current generally sets westward, and its rate increases with the scirocco; it is felt a little in the Avamporto, but usually there is no current in the port excepting a slight outward set. The current may be reversed by westerly winds.

**City.**—The city of Genoa (*Lat. 44° 24' N., Long. 8° 55' E.*) is built on the slopes of a steep range of mountains at the base of the Ligurian Apennines, which surround the port, the greater portion of the city being on the eastern side of the port. There are lines of fortifications and several detached forts on the summits of hills. The streets are steep, narrow, and irregular in the old part of the city, but here are many fine buildings and palaces; the streets are broad and straight in Carignano, the newer (south-eastern) part. The principal public buildings are the Palazzo Ducale, Cattedrale di San Lorenzo, Università, Palazzo Reale, the Royal College, and Naval School; there are also numerous churches, convents, and botanic and other gardens.

The city lies between Torrente Polcevera, on the west, and Torrente Bisagno, on the east, and water is brought into it partly by an aqueduct, 25 miles long, from Torrente Bisagno, and partly by an aqueduct from La Scrivia, on the northern side of the Apennines. The population was 289,154 in 1913.

Genoa is an important commercial city and the principal seaport in Italy; the chief industries are shipbuilding, iron smelting, tanning, cotton spinning, manufacture of bricks and tiles, soap, candles, felt and straw hats, mineral oil, and artificial ice.

A British Consul-General and a Vice-Consul are stationed at Genoa.

**Trade.**—The principal imports are coal, wheat, maize, other cereals, timber, cotton, manures, pig and scrap iron, heavy mineral oils and residues, coffee, and petroleum, and the exports are spirits, wine, oil, vermicelli, silk, cotton goods, minerals, metals and their products, rice, cheese, paper, hemp, flax, and jute. The imports amounted to 4,834,065 tons, and the exports to 403,909 tons in 1913.

**Shipping.**—In 1913, 5,685 vessels, of 7,089,859 tons, entered the port; of these, 627 vessels, of 1,454,337 tons, were British.

**Supplies.**—Provisions are plentiful; the supply of fresh meat is limited, but good frozen meat can always be obtained. Water is taken in pipes around the port, and can be obtained at the wharves from Ponte Pietro Paleocapa to Molo Vecchio. There are also some floating tanks with steam pumps available to supply vessels in the Avamporto.

**Coal.**—In 1913, 3,192,299 tons of coal were imported, and some 75,000 tons are usually in stock, 20,000 tons being kept ready in lighters. Coaling is done by lighters, and some 400 to 500 tons can be put on board in a working day.

*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

**Repairs** of any kind can be made good at the works of the Società dei Bacina, and at the establishments Ansaldo, Odero, and some smaller ones. These establishments not only build and repair steam merchant vessels, but also build, fit out, and repair vessels of war. 5

**Docks.**—There are two dry docks northward of the inner part of Molo Giano, and one eastward of the entrance to the Darsena; a floating dock is moored northward of Molo Vecchio. For particulars, see Appendix I.

**Time signals.**—At the signal station of San Benigno a group of 10 electric lights, each of 1,000 candle power, is switched on five minutes before the signal and extinguished at 22h. 05m. 00s., 0h. 05m. 00s., and 3h. 05m. 00s. standard time, or 21h. 05m. 00s., 23h. 05m. 00s., and 2h. 05m. 00s., respectively, Greenwich mean time. On festival days the signal is made once only at 0h. 05m. 00s. 15 standard time.

The signal can be seen from a distance of about  $4\frac{1}{2}$  miles when the sun is shining brightly.

A gun, at Forte del Castellaccio (*Lat. 44° 26' N., Long. 8° 56' E.*) is fired electrically from the Istituto Idrografico of the R. Marina at 20 noon standard time, or 23h. 00m. 00s. Greenwich mean time.

Should the gun fail to fire from an accidental cause at the proper time, it will be fired one hour later.

**Hospitals.**—Chiapella military hospital has 300 beds; Pammattone hospital has 900 beds, and receives foreigners at a charge of 25 3 lire daily; Galliera hospital has 300 beds for natives, and an annex for patients of any nationality, with separate rooms on payment in advance; the charge is from 5 to 12 lire daily.

**Disinfecting station.**—There is a disinfecting station on Ponte Pietro Paleocapa in the large premises of the Lazaretto. 30

**Communication.**—Genoa is connected by rail with Nice, to the westward, Chiavari, to the eastward, and the lines to the interior.

Steam vessels run to all the Italian ports, Marseille, Barcelona, English ports, Egypt, Tunis, India, China, Japan, Australia, and North and South America. 35

The telegraph office is always open; there is telephonic communication with the suburbs, Voltri, and Rome.

**Wireless telegraph.**—There is a wireless telegraph station at Forte Castellaccio always open to the public; the call letters are I.C.B. 40

Vessels fitted with wireless telegraph approaching Genoa are requested to communicate the time of their probable arrival to this station in order that arrangements may be made for their berthing, &c.

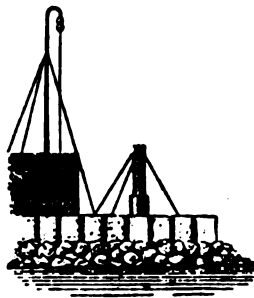
*General charts 157, 1780, 2158a, 449.*

*Plan, Genoa, on 1461. Var. 9° 50' W.*

- Measured distance.**—A distance of 6,265 feet has been measured outside the port for testing the speed of vessels. The western limit is the central pillar of Polveriera Granarolo in line with  
 5 Capo del Faro lighthouse, and the eastern limit is Torre Embriaci in line with a telemetrical mark on the head of Molo Duca di Galliera; the running course is 111° and 291° true.



Polveriera Granarolo.



Telemetrical mark on head of Molo Duca di Galliera.



Torre Embriaci.

*Plan, Approaches to Genoa, on 1461.*

- The coast** from Punta San Giacomo (*Lat. 44° 24' N., Long. 8° 56' E.*)  
 10 trends eastward, nearly 10 miles, to the mouth of Torrente Recco, and then turns southward  $2\frac{1}{2}$  miles to Punta della Chiappa; it is bold-to and high, but a few scattered rocks lie within  $1\frac{1}{2}$  cables.  
 Borgo della Foce is on the left bank of Torrente Bisagno, and in it are the Odero building yards and the Cravero workshops. Punta  
 15 Vagno lies three-quarters of a mile from Punta San Giacomo, and the 5-fathom line is about  $2\frac{1}{2}$  cables off the coast between. On Punta Vagno is Batteria San Michele, and more to the eastward is Forte San Giuliano, with Forte San Martino on a hill north-eastward of it.  
 20 Sturla village is one mile eastward of Forte San Giuliano, and is marked by a long railway viaduct with twelve arches, which runs along the coast eastward of it.

*Chart 157, San Remo to Cape Cavallo.*

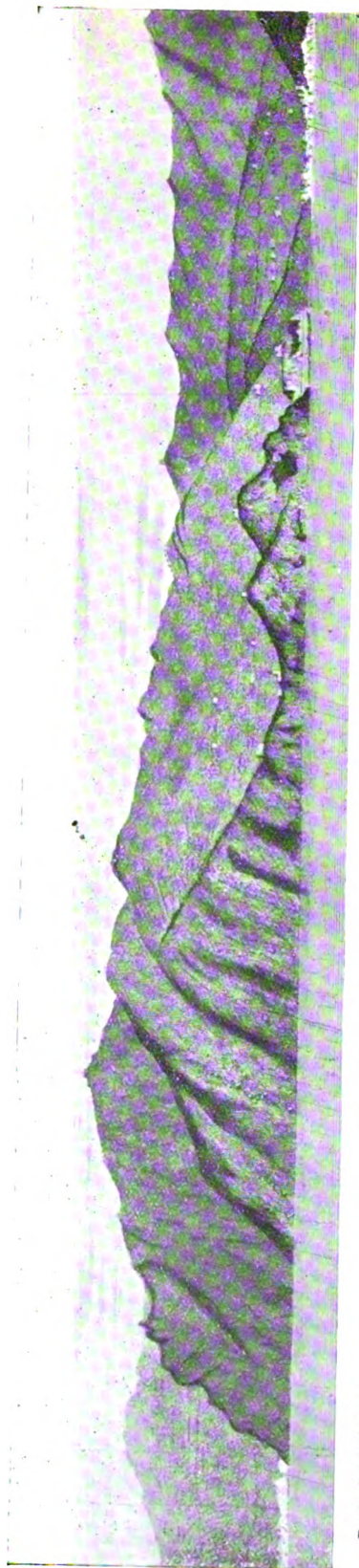
- Nervi, Bogliasco, and Recco, distant respectively 4,  $5\frac{1}{2}$ , and 7 miles  
 25 from Punta Vagno, are the principal towns on the coast.

Monte Fascia,  $1\frac{1}{2}$  miles northward of Nervi, is 2,733 feet high, and there is a white cross on its summit. Between Nervi and Bogliasco are the large square yellow buildings of Eden hotel.

- Torrente Sori flows into the sea about  $1\frac{1}{2}$  miles eastward of Bog-  
 30 liasco, and near the western side of the entrance is Torre del Ponte Legno, 55 feet high, but not noticeable.

Monte di Santa Croce, 1,720 feet high, with a chapel on its summit, is about half a mile northward of the tower.

*General charts 157, 1780, 2158a, 449.*



*Punta della Chiappa.*

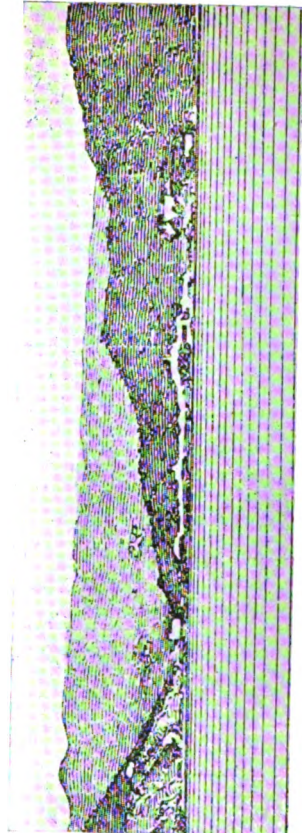
*Old Semaphore.*

*Portofino.*

*Promontorio di Portofino.*

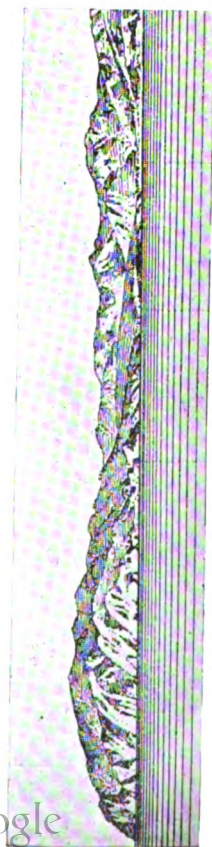
*Punta di Portofino,  
bearing 0° true, distant about 4 miles.  
Punta Pagano.*

*Rapallo.*



*Madonna della Nave.  
Casal Uvieri.  
Campanile di Legnaro.  
Levanto.*

*Levanto.*



*Semaphore. Old Semaphore.  
Punta di Portofino, S. Margherita,  
bearing 330° true, about 3 miles.*

*Promontorio di Portofino.*

*Rapallo.*



*Chart 157, San Remo to Cape Cavallo. Var. 9° 50' W.*

Sori village lies on each side of the mouth of the torrente, over which is a high arched railway viaduct.

**Porto di Camogli**, nearly a mile south-eastward from Torrente Recco, is small and sheltered by a mole about a cable in length, but a dangerous swell sets in with the libeccio. In 1907, the head of the mole was destroyed by the sea, and the materials encumber the entrance to the port. 5

**Tunny fishery.**—Tunny nets extend  $2\frac{3}{4}$  cables from the shore northward of Punta della Chiappa; they are marked by cork buoys, and at night by a white light in the middle. 10

**Punta della Chiappa** (Lat.  $44^{\circ} 19' N.$ , Long.  $9^{\circ} 9' E.$ ) juts out about a cable westward from the south-west extreme of Promontorio di Portofino, and its extreme appears like a low, bare, and blackish mole. 15

A white pillar stands near the root of the point, and a pillar, slightly pyramidal and painted black and white in chequers, stands on the middle of the point; the latter is a mark for a measured distance.

Monte Portofino, the summit of the promontory, is 2,001 feet high, and is marked by the old semaphore, and the new semaphore and old forts on the lower summits. Views at page 266. 20

**The coast** from Punta della Chiappa trends east-south-eastward  $3\frac{1}{2}$  miles to Punta di Portofino; it is steep-to. The Torretta, a square tower, stands 338 feet above high water, on a point about a mile south-eastward of Punta della Chiappa. 25

**Signal station.**—A semaphore, the house being chequered black and white, is situated on Monte Tocco, 1,449 feet above high water, in the south-western part of the promontory.

**Measured distance.**—A distance of 19,810 feet has been measured southward of Promontorio di Portofino. The running mark is Torre Sestri (Sestri Levante) in line with Casa Macallè,  $96^{\circ}$  true; the beacon on Monte San Nicolao, which is southward of the line, is a good mark for finding Casa Macallè. The western limit is the beacon on Punta della Chiappa in line with the western side of Casa ex Raggio; the eastern limit is the beacon on Punta di Portofino in line with Villa Spinola at Santa Margherita. Views at page 268. 30 35

*Plan 3210, Rapallo bay.*

**Punta di Portofino**, the south-east extreme of the promontory, rises about 2 cables north-westward to a green hill, 328 feet high, on which is an old fort, and a castle (now Villa Brown); the point is 40

*General charts 157, 1780, 2158a, 449.*



*Plan 3210, Rapallo bay. Var. 9° 45' W.*

a bare rock, on which is a white pillar surmounted by a staff, one of the marks for the measured distance. There is a similar but larger pillar on the higher slope of the hill and near the lighthouse. Views  
5 at pages 266, 268.

**LIGHT.**—A light is exhibited, at 131 feet above high water, from a turret, 42 feet high, near a two-storied yellow house on Punta di Portofino.

**Golfo di Rapallo** extends about 3 miles northward from its  
10 entrance between Punta di Portofino and the town of Chiavari, on the shore about  $4\frac{1}{2}$  miles to the eastward.

**Portofino** is an indentation extending  $1\frac{1}{2}$  cables south-westward on the western side of Punta Coppo, which is situated about  $3\frac{1}{2}$  cables north-westward of Punta di Portofino, with a width of about three-  
15 quarters of a cable, and has a sandy beach at its head. There is a depth of 13 fathoms in the entrance, which decreases gradually to 2 fathoms near the head. The port is sheltered except from north-easterly winds when the sea is never very heavy. Vessels of moderate draught can anchor in the entrance and secure the stern to a bollard  
20 on shore, but should leave with easterly winds, or with bad weather from the south-west, when a swell, thrown back from the northern shore of the bay, is felt in the port.

**Lights.**—A light is exhibited, at 26 feet above high water, from an iron support on the south-east angle of the Health office, on the  
25 north-western side of the entrance to the port.

A light is exhibited, at 16 feet above high water, from two iron guides on a cylindrical pillar, situated on Scoglio Isolotto (*Lat.  $44^{\circ} 18' N.$ , Long.  $9^{\circ} 13' E.$* ), on the southern side of the port.

A light is exhibited, at 15 feet above high water, from an iron  
30 standard on a little mole at the head of the port.

**Buoy.**—A mooring buoy lies in the entrance to the port.

**The village** on the north-western side of the port is much frequented in winter; there is a large hotel and also several villas.

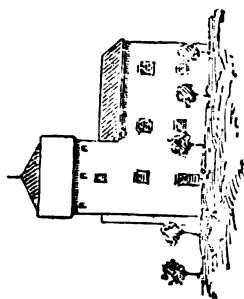
**Supplies.**—Provisions can be obtained from Santa Margherita,  
35 and water from a hydrant on the north quay, alongside which is a depth of 6 feet with 12 feet a little off it.

**Porto Paraggi**, separated from Portofino by Punta Cajeca, which is situated  $1\frac{3}{4}$  cables northward of Punta Coppo, is a bight extending  $1\frac{1}{2}$  cables north-westward, with depths of 10 fathoms in  
40 the entrance, but shoaling quickly inside; it is unsuitable for vessels, and is seldom visited. Paraggi village is on a sandy beach, at its head. The northern entrance point is a conical rock connected to the land, and on it is Castello Cervara, 46 feet high; about  $1\frac{1}{2}$  cables

*General charts 157, 1780, 2158a, 449.*



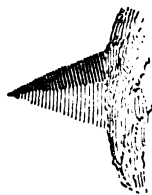
*Torre Sestri.*



*Casa Macallè.*



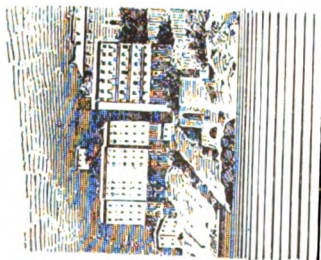
*Torre Sestri in line with Casa Macallè.*



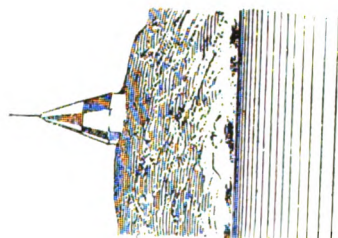
*Monte San Nicola beacon.*

Punta Chiappa to Punta Portofino.—Measured distance.—Marks.

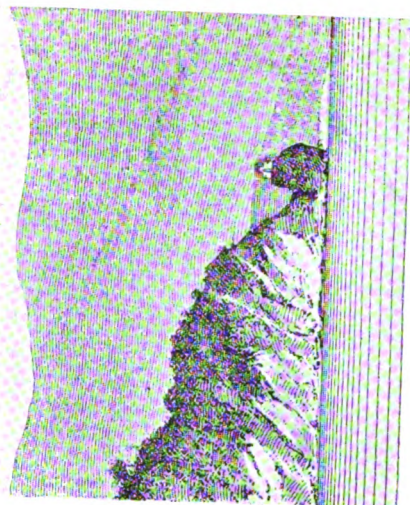




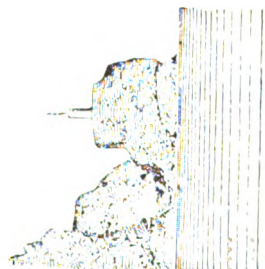
*Casa ex Raggio*  
The higher of the two western  
houses of Cancogli.



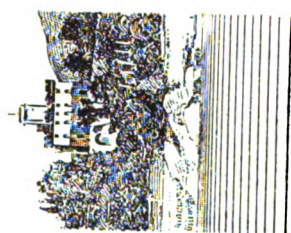
*Punta della Chiappa beacon.*



*Beacon on Punta di Portofino in line with Villa Spinola  
at Santa Margherita.*



*Punta di Portofino beacon.*



*Villa Spinola at Santa Margherita.*

Punta Chiappa to Punta Portofino.—Measured distance.—Marks.



*Plan 3210, Rapallo bay. Var. 9° 45' W.*

northward of it is Convento di Cervara, 111 feet high, a yellow building with three rows of windows and a small pointed campanile; close off the coast under the convent is La Sedia, a noticeable rock.

**The coast** from Punta della Cervara, just northward of La Sedia, 5 to Punta del Pedale,  $4\frac{1}{2}$  cables further northward, forms a bay, known as Rada della Cervara. A bank extends half a cable off the shore south-westward of Punta del Pedale.

**Anchorage.**—Rada della Cervara affords anchorage in from 10 to 16 fathoms water, mud bottom, rather more than a cable off- 10 shore, during westerly winds.

**The coast** from Punta del Pedale trends northward about half a mile to the southern point of Porto Santa Margherita.

**Porto di Santa Margherita** extends north-westward about 3 cables from its entrance between the southern point and Punta 15 Pagana (*Lat. 44° 20' N., Long. 9° 14' E.*); there is a sandy beach at the head. There are depths of 7 and 9 fathoms in the entrance, but the water inside quickly shoals to 3 fathoms and less water. A mole extends about a cable north-eastward from the southern point; its 20 outer end should not be approached to less than 40 yards. There is good anchorage 2 cables off the molehead in 10 fathoms water. Small vessels moor with sterns hauled to the shore in about  $2\frac{1}{2}$  fathoms water.

**Light.**—A light is exhibited, at 39 feet above high water, from an iron framework on a masonry hut on the molehead. 25

**Santa Margherita village** extends along the shore westward of Punta Pagana; on its southern side is an old fort, southward of which is that part of the village named Corte.

The principal industries are coral fishing, fishing, and agriculture.

There is a hospital with 40 beds at Santa Margherita. The village 30 has railway and telegraph communication.

Villa Spinola, about a cable westward of Punta Pagana, is surmounted by a square central tower, and is noticeable.

On the northern side of Punta Pagana is a little cove of the same name, northward of which is Porto San Michele, a similar cove: the 35 church of San Michele di Pagana, with a yellow and red campanile and a black cupola, stands amongst the trees on the point which separates the coves.

**Punta Langan**, the northern point of Porto San Michele, and all the coast between that port and Rapallo, are covered with villas 40 near the sea.

**Rapallo**, a town situated about three-quarters of a mile northward of Punta Pagana, extends along the north shore of a cove. Rio

*General charts 157, 1780, 2158a, 449.*

*Plan 3210, Rapallo bay. Var. 9° 45' W.*

Bogo flows into the cove on the western side of the town, and Torrente San Francesco, through the eastern part. Monte Garavagli, 2½ miles north-westward of the town, is surmounted by a sanctuary, 2,011 feet  
 5 above high water; the church in the town has a remarkable yellow and reddish campanile, and near the bridge over Torrente San Francesco a massive fort rises from the sea; it is of elliptical section, dark in colour, furnished with windows, and surmounted by a square turret. The town is a favourite winter resort; the principal industry is lac-  
 10 making; vegetables and fruit are produced. There is communication by railway and telegraph. The population was 11,486 in 1913.

The cove is 4 cables in extent with depths of from 2 to 2½ fathoms in the middle; it is well sheltered except from southerly winds. A mole, about 65 yards long, extends north-eastward from the western point  
 15 of the cove; the space northward of it is available only for boats owing to the small depths. A similar mole extends off the southern entrance point to Rio Bogo; both moles have from 2 to 10 feet water alongside; a little southward of the last-mentioned mole is a small wooden pier with 4 feet water at its head. Rocky and foul ground  
 20 extends a cable off the eastern shore, eastward of the southern mole.

Anchorage off Rapallo is much exposed and consequently little frequented.

**The coast** from Rapallo (*Lat. 44° 21' N., Long. 9° 14' E.*) trends south-eastward 8 miles to the peninsula of Sestri; for the first 3 miles  
 25 it is high and steep, and then is a steep and clear beach. Zoagli village, about 1½ miles from Rapallo, is situated round a little cove, the shores of which are rocky with a gravel beach at its head. Torrente Stella, which runs through the village, is crossed near its mouth by a viaduct of seven arches. Monte Enchetta, 1,804 feet high, is about  
 30 one mile north-eastward of Zoagli.

**Chiavari**, a town on the coast 2½ miles south-eastward of Zoagli, is enclosed by cultivated hills; on the east side of the town is Fiumara Entella, one of the largest streams flowing into the Gulf of Genoa. Chiavari contains several churches, a hospital, a convent, and lace and  
 35 silk twist manufactories; marble and slate are quarried in the locality. The population was 14,267 in 1913.

**Anchorage.**—There is anchorage anywhere off the town; the 3-fathom line extends to a distance of 1½ cables, and the 5-fathom line 3½ cables, off the beach; the holding ground is good.

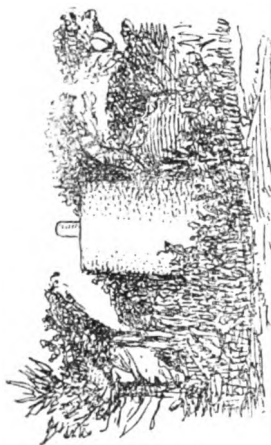
40 *Chart 157, San Remo to Cape Cavallo.*

**Lavagna village**, about half a mile eastward of the mouth of Fiumara Entella, has a fine church with a large black cupola, the sea front being white with twin campaniles surmounted by black cupolas; it is noted for its slate quarries.

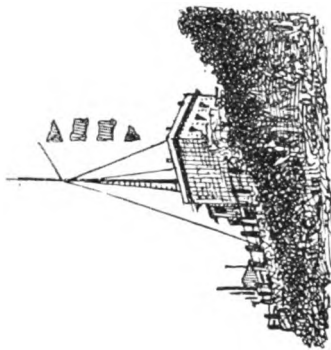
*General charts 157, 1780, 2158a, 449.*



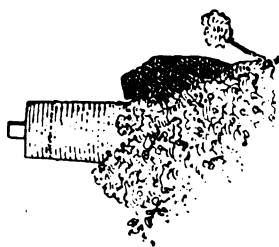
*Torre Villa Otero.  
Punta Cajeca.*



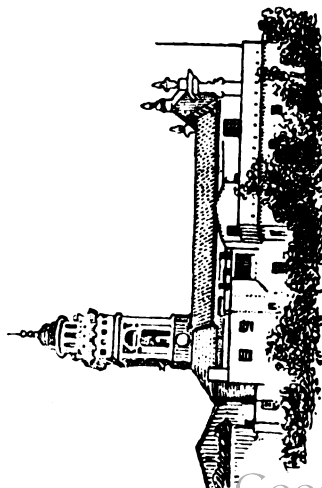
*Torre. Campo.*



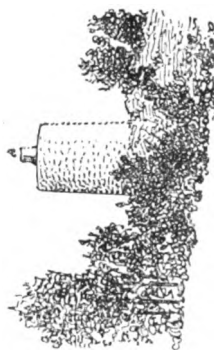
*Portofino semaphore.*



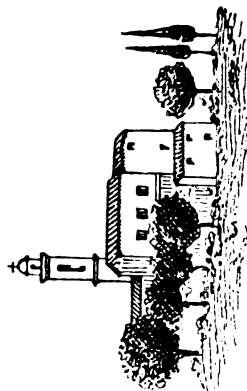
*Torre.  
Punta Manara.*



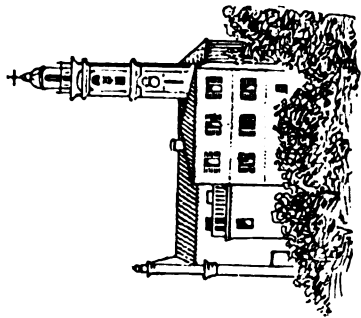
*Bacezza campanile.*



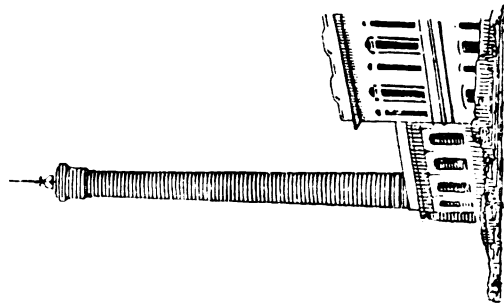
*Torre. Punta Basse.*



*S. Bartolomeo campanile.*



*Breccaneca campanile.*



*Entella cotton factory chimney.*

Chiavari, measured distances off; marks.





*Chart 157, San Remo to Cape Cavallo. Var.  $9^{\circ} 40' W$ .*

**Measured distances.**—A distance of 9,721 feet has been measured off Chiavari; the running course is a whitish cylindrical tower on the steep part of Punta Manara in line with a similar tower on Punta Baffe, bearing  $111^{\circ}$  true; a distance of 9,683 feet has also been measured, the running course being Torre Villa Odero, on Punta Cajeca, in line with the white cylindrical tower near Campo, bearing  $292^{\circ}$  true. The western limit for both distances is the campanile of Bacezza church in line with the campanile of San Bartolomeo church, and the eastern limit is the chimney of the cotton factory at Entella in line with the campanile of Breccanecca church. The depth on the courses is 37 fathoms.

These courses are only to be used by vessels with a displacement of 1,500 tons up to a speed of 26 knots; 3,000 tons to 25 knots; 5,000 tons to 24 knots; 10,000 tons to 20 knots; and 15,000 tons to 15 knots. Views at page 270.

**The coast** south-eastward of Lavagna (*Lat.  $44^{\circ} 18' N$ , Long.  $9^{\circ} 21' E$ .*) is backed by steep slopes, which are thickly wooded in places; it is clear at a moderate distance, the 5-fathom line being about 4 cables off it.

Cavi is a small group of houses built around a church with a cupola, situated near the sea  $1\frac{3}{4}$  miles from Lavagna.

*Plan, Sestri Levante, on chart 157.*

**Sestri Levante** stands on the eastern part of the rocky peninsula of Sestri, which is about 3 cables in length east and west and 2 cables broad, the sandy isthmus connecting it to the main and the coast for about  $2\frac{1}{2}$  cables north-eastward. There is a tower, 131 feet above high water, on the summit of the peninsula, but it is almost concealed by trees; the marine asylum (hospital), on the south-eastern part of the peninsula, is painted black and white in stripes and surmounted by a square turret; the population is about 12,000.

A rocky mole extends nearly a cable north-north-westward from the north-western part of the peninsula; its outer end is submerged.

A rocky patch, with  $2\frac{1}{2}$  fathoms water, lies 2 cables off a small rocky point about three-quarters of a mile northward of the peninsula; the water is deep close around the peninsula, but the 3-fathom line is about  $1\frac{1}{2}$  cables off the shore of the northern bay.

**Light.**—A light is exhibited, at 39 feet above high water, from a wooden post, 23 feet high, on the outer end of that part of the mole which is above water.

This light should be given a berth of not less than 70 yards.

**Buoy.**—A mooring buoy lies in  $2\frac{1}{4}$  fathoms water in the northern bay of Sestri.

*General charts 157, 1780, 2158a, 449.*

*Plan, Sestri Levante, on chart 157. Var. 9° 40' W.*

**Anchorage.**—There is anchorage, in about  $6\frac{1}{2}$  fathoms water, about 2 cables northward of the light-post on the mole. Small vessels anchor more inshore to the eastward of the mole in about 5 fathoms water.

**Calanca.**—The calanca on the south side of the isthmus does not afford good anchorage, and it is seldom used; it is only available for small vessels.

**The coast** from Sestri trends southward one mile to Punta Manara, and is moderately high and rocky.

**Punta Manara** is a bold cliffy headland; on it is an old telegraph tower, with a cupola, 574 feet above high water, and also a whitish tower, a measured distance mark.

*Chart 157, San Remo to Cape Cavallo.*

**The coast** from Punta Manara (*Lat. 44° 15' N., Long. 9° 24' E.*) trends south-eastward, 10 miles, to Punta del Mesco, and forms several bays, open south-westward. A steep range of mountains extends south-eastward from the Apennine range, and Monte San Nicolao, one of the peaks, about 7 miles eastward of Punta Manara, is 2,781 feet high; there is a beacon on it; view at page 268. There are several villages on the coast and the steep slopes of the mountains.

**Punta Baffe**, 2 miles south-eastward of Punta Manara, is a remarkable and rather salient headland rising abruptly to the height of 827 feet, with a whitish tower, a measured distance mark, on it; Baia Dentone lies between these points, and on a beach at its head are Riva Ponente and Riva Levante villages.

**Punta Moneglia**, 2 miles from Punta Baffe, is the high and rocky extreme of a spur from Monte Moneglia,  $1\frac{1}{2}$  miles to the northward and 1,709 feet high.

**Moneglia**, a village, stands at the head of a bay eastward of Punta Moneglia, and the church in its south-eastern part has a high and conspicuous campanile; a few rocks lie a short distance off the points, and Pietra Stella, a rock partly awash, is situated one cable off the village; the land on the eastern side of the bay rises to a height of 1,436 feet; on this summit is a conspicuous white building.

**Anchorage.**—There is anchorage in from 3 to 6 fathoms, sheltered from winds northward of west, on the west side of the point at the head of the bay.

**Deiva village** lies at the mouth of the valley, situated about 2 miles south-eastward of Moneglia, and through which Torrente Deiva flows to the sea.

*General charts 157, 1780, 2158a, 449.*

No. 953.—SALERNO—ALTERATION IN CHARACTERISTICS OF LIGHT.

*Position.*—On the south-eastern extremity of the new mole.

Lat.  $40^{\circ} 40\frac{1}{4}'$  N., long.  $14^{\circ} 45\frac{1}{2}'$  E.

*Details.*—The fixed red light has been replaced by a light having the undermentioned characteristics:—

*Character.*—An *occuling red light every ten seconds*, thus:—

Light,	eclipse.
5 secs.	5 secs.

*Elevation.*—27 feet.

*Visibility.*—8 miles.

Chart No. 1596.

Med 2, p. 272.

No. 953.—SALerno.—ALERTNESS IN CHARACTERISTICS OF LIGHT.  
 Position.—On the south-eastern extremity of the new mole.  
 Lat.  $40^{\circ} 40' N$ . Long.  $14^{\circ} 15' E$ .  
 Details.—The fixed red light has been replaced by a light having the  
 undetermined characteristics.—  
 Character.—An occulting red light every two seconds thus —  
 Light  
 5 secs  
 Eclipse  
 5 secs

Altitude.—27 feet.  
 Visibility.—8 miles.  
 Chart No. 1590

Med. 2 p. 272

*Chart 157, San Remo to Cape Cavallo. Var. 9° 30' W.*

**Fortified coast.**—The coast between Torrente Deiva and Fiume Frigido, about 13 miles south-eastward of Spezia, is considered fortified. See Regulations, page 30.

**Bonassola village** lies at the head of a small cove eastward of Punta di Monte Grosso, which is situated  $4\frac{1}{2}$  miles from Moneglia. 5

**Levanto**, a small town, lies about  $1\frac{1}{2}$  miles eastward of Bonassola, on the eastern shore of a bay. The population is about 5,000. The small chapel of Madonna della Neve, with no campanile, is situated, 208 feet above high water, a little inland from the west side of the bay; Casa Olivieri, a conspicuous white house with a square tower, lies a little further south-eastward; a railway bridge with three arches and a cylindrical red and yellow tank are conspicuous, while immediately south-eastward is the railway station, which is noticeable. Campanile di Legnaro, 604 feet above high water and reddish in colour, lies north-eastward of Levanto. View at page 266. 15

**Secca della Peria**, a rock with about 3 feet water, and from 7 to 10 fathoms around, lies 2 cables off the north-west shore of the bay. The passage inside the rock is navigable.

**Clearing marks.**—Casa Olivieri in line with Campanile di Legnaro leads northward, and the railway station well open southward of Campanile di Legnaro leads southward, of the rock. 20

**Anchorage.**—There is anchorage anywhere in the bay, avoiding Secca della Peria; the  $2\frac{1}{2}$ -fathom line is not more than a cable off-shore, and the 5-fathom line about  $2\frac{1}{2}$  cables. 25

**Punta del Mesco** is bold, steep-to, and faced by high cliffs; Monte Ve, 1,621 feet high, lies  $1\frac{1}{2}$  miles to the northward; on the point are the conspicuous ruins of San Antonio convent, 1,020 feet above high water, with a flagstaff behind them. The point is steep-to, and there is a small rocky islet close off its western side; about half a mile off the point there is a depth of 30 fathoms. 30

**The coast** from Punta del Mesco (*Lat. 44° 8' N., Long. 9° 38' E.*) turns north-eastward one mile, and then trends south-eastward 5 miles to Capo di Negro; it is high, rocky, and steep-to. There are several villages on it and the wooded slopes. 35

**Villages.**—Monterosso village is situated about one mile north-eastward of Punta del Mesco, and is fronted by a beach off which small craft load with sandstone and pitprops, which are mostly for Sardinia. Often, when the traffic is active, some private buoys are moored off the village for the use of tugs and lighters. The village has railway and telegraphic communication. 40

*General charts 1780, 2158a, 449.*



*Chart 157, San Remo to Cape Cavallo. Var. 9° 30' W.*

Vernazza village,  $1\frac{1}{4}$  miles south-eastward of Monterosso, has a church with a campanile and two cylindrical towers. South-eastward of Vernazza is a conspicuous wall, which supports the railway.

- 5 Corniglia village stands on a little projection about  $1\frac{1}{2}$  miles from Vernazza; it is marked by a wall, with many blind arches, which supports the railway.

Manarola village,  $1\frac{1}{4}$  miles south-eastward of Corniglia, is partly built on a rocky point.

- 10 Rio Maggiore village is situated at the mouth of a narrow valley just northward of Capo di Negro.

**Capo di Negro (Monte Negro)**, 5 miles from Punta de Mesco, rises to a mountain, 1,115 feet high, a short distance north-eastward, which is surmounted by a conspicuous white rectangular

- 15 sanctuary, with a high tower and cupola in the middle.

**The coast** from Capo di Negro (*Lat. 44° 6' N., Long. 9° 44' E.*) trends south-eastward 5 miles, to Punta San Pietro, and is high cliffs bordered by rocks in places to the distance of a cable.

- 20 **Scoglio Ferale**, about a cable off-shore,  $2\frac{1}{4}$  miles south-eastward of Capo di Negro, is conical, and there is a white cross on its summit; the channel inside it is encumbered with rocks.

*Plan 155, Gulf of Spezia.*

- Monte Castellana**, near the coast,  $3\frac{3}{4}$  miles south-eastward of Capo di Negro, is 1,673 feet high, with a fort on its summit. **Monte**  
25 **Muzzerone**, three-quarters of a mile south-eastward of **Monte Castellana**, is 1,047 feet high, with a fort on its summit; the slopes are steep and covered with olive trees.

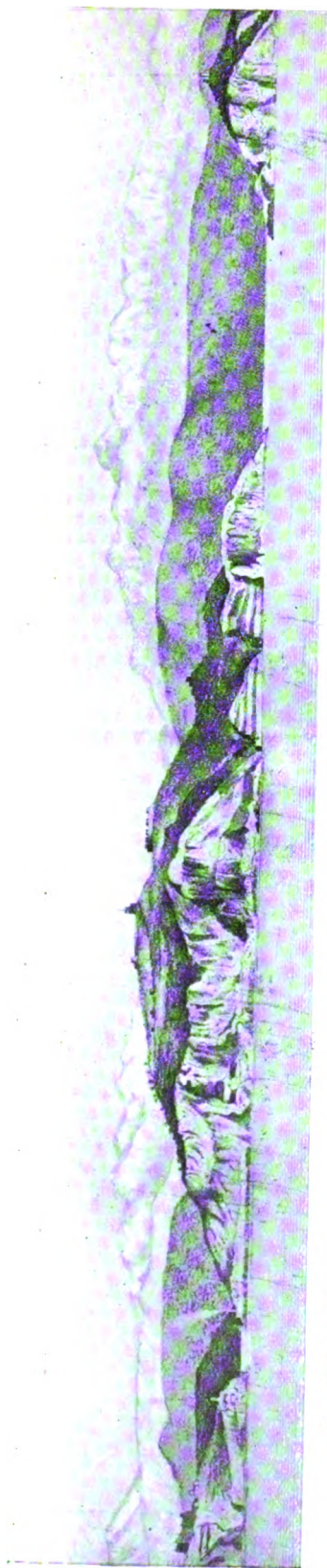
- Punta San Pietro**, the southern end of the mainland on the west side of Golfo della Spezia, is rocky, and on it is the ruin of  
30 an old church, with an old square fort on higher ground behind it. There is a small bay immediately north-westward of the point, with deep water.

- Little passage** (Passo di Porto Venere) trends north-eastward between Punta San Pietro, with the coast on which is Porto Venere  
35 village, and the north-western part of Isola Palmaria; it has a least width of half a cable. There is a bank, with from  $1\frac{1}{2}$  to 2 fathoms water, between the village and the island, so the passage is navigable only by vessels of 8 feet and less draught. View at this page.

- Light.**—A light is exhibited, at 21 feet above high water, from an  
40 iron trellis mast, painted grey with a red top, near the head of the mole off Porto Venere village.

**Leading beacons.**—There are two masonry pyramidal beacons, each 20 feet high, on Punta della Castagna; the south-western (front)

*General charts 157, 1780, 2158a, 449.*



*Passo di Porto Venere  
(Little passage).*

*Semaphore bearing 72° true, 2½ miles.  
Isola Palmaria.*

### **Palmaria and Tino.**

*Passo del Tino.*

*Isoletto del Tino.*



*Isoletto del Tino,  
bearing 265° true, one mile.*

*Semaphore,  
Isola Palmaria.*

### **Golfo della Spezia.**

*Torre della Scuola.*

*Forte Santa Maria.*





*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

one is white, and the other (rear) black and white in horizontal stripes. The beacons in line 48° true lead through the middle of Little passage.

**Porto Venere village** (ancient Portus Veneris) is situated on the coast about 1½ cables north-eastward of Punta San Pietro, eastward of the old fort above mentioned. The ruins of the old church have a campanile and a dome. 5

A mole extends about 65 yards from the middle of the village, and a wide paved mole, furnished with steps, extends about 30 yards off the shore south-westward of the hospital. 10

The hospital (*Lat. 44° 3' N., Long. 9° 50' E.*) is a large square yellow building close north-eastward of the village.

**Fortified ports.**—Levanto, Monterosso, and Porto Venere are considered to be fortified ports. See Regulations, page 30. 15

**Isola Palmaria** is triangular in shape, with an irregular outline, each side being about a mile in length; the summit, 617 feet high, and nearly in the middle, rises steeply from the south-westward; on it are a semaphore and a fort; the slopes are covered with olive trees, and the island is noted for its marble. Views at page 274. 20

Seno del Terrizzo, on the north coast of the island, is protected by a bank of rocks and sand, which extends about 1½ cables northward from the coast westward of it; it affords anchorage for small steamers and fishing craft. The coast from the bay trends east-north-eastward to Punta della Scuola, which is relatively low, and surrounded by a small rocky bank. 25

**Scoglio Scuola**, 1½ cables eastward of Punta della Scuola, is small in extent, and low; Torre della Scuola, partly in ruins, stands on the rock, and is surmounted by a stone pillar. The rock is surrounded for a short distance by a bank, and in the very narrow fairway of the passage between it and Palmaria there is a depth of 6 fathoms; 1½ cables northward of Scoglio Scuola is a rock with 5½ fathoms water, and 7 and 8 fathoms around. View at page 282. 30

The west coast of the island is cliffs which are steep-to.

Capo dell' Isola, the south point of the island, is marked by an aeromotor, to the eastward of which is a cave. The east coast of the island is clear at the distance of half a cable; Punta della Mariella is 7 cables from Capo dell' Isola. 35

There is a telegraph cable between the island and the mainland.

**Beacon.**—Above the cave on Capo dell' Isola is a post surmounted by a disc, painted black and white in stripes; it is a mark for a measured distance. 40

**Buoys.**—A buoy marks the rock with 5½ fathoms water 1½ cables northward of Scoglio Scuola.

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

Three conical buoys, for the use of torpedo craft, are moored eastward of Seno del Terrizzo.

- Prohibited anchorage.**—Anchorage is prohibited within a distance of 7 cables from the shore of the bay between Punta della Mariella and Punta della Scuola, as submarine works are in progress.

- Signal station.**—There is a semaphore, 670 feet above high water, on the summit of the island (*Lat. 44° 2' N., Long. 9° 50' E.*), and about a cable within the middle of the west coast; the semaphore house is painted black and white, in chequers. There is a continuous service by day and at night.

Vessels entering and leaving the gulf by day and at night should make their numbers to the station.

- Isola del Tino**, a quarter of a mile southward of Palmaria, is 3½ cables long north-west and south-east, 1½ cables broad, and 306 feet high. Views at pages 274, 282. The west coast is steep cliffs of a light colour, and the slopes of the east coast are covered with a dark vegetation.

- There is a depth of 16 fathoms in Passo del Tino, between Capo dell' Isola and the islet, but the current sets strongly westward through it, and it should not be taken by sailing vessels with light or variable winds. Isola del Tinetto is an islet about one cable southward of Tino, the ground between being rocky and foul; a rocky spit extends about one cable southward from Tinetto.

- LIGHT.**—A light is exhibited, at 386 feet above high water, from a white circular tower, 80 feet high, with a reddish dwelling attached, on the summit of Isola del Tino, near the middle of its south-western side.



*Isola del Tino lighthouse.*

**Beacon.**—There is a stone pillar, 20 feet high, on the eastern slope of Isola del Tino; it is a mark for a measured distance.

- GOLFO della SPEZIA** (ancient Portus Lunae) extends about 6 miles north-westward from its entrance, which is between Isola del Tino and Punta Corvo, nearly 5 miles to the eastward. The shores are much indented, and several coves afford good shelter. Except in the coves, and at the head of the gulf, where there are depths of less than 3 fathoms within a distance of from 2 to 2½ cables, the depths gradually decrease from 10 fathoms at the entrance to 4 and 5 fathoms; the western side is the deeper, and the bottom is mud. The entrance to the gulf is guarded by numerous batteries.

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

**Caution.**—**Submarine vessels** are under way for exercise daily in the vicinity of Golfo della Spezia, principally in depths of over 15 fathoms, between Isola del Tino and Leghorn.

These vessels, when submerged, are usually escorted by a vessel which flies a red square flag at the masthead. 5

A similar flag is hoisted at Isola Palmaria semaphore, which, when necessary, is hauled down to signal to vessels.

Vessels observing the escorting vessel should pay attention to any International code signals she may make; these signals, when urgent, may be accompanied by the firing of a gun. 10

A good lookout should be kept for the periscopes of submarines, which are usually surmounted by a pole about 2 feet high, on which is a red triangular metal vane with a white number.

**Baia di Porto Venere**, between Isola Palmaria and Punta della Castagna (*Lat. 44° 4' N., Long. 9° 51' E.*), the south-eastern extreme of the western promontory of Golfo della Spezia, and is well sheltered. There are depths of 6 to 8 fathoms, mud, in the bay, which affords anchorage eastward of the bank extending between the mainland and the north-western part of Isola Palmaria; merchant vessels are prohibited from anchoring in the outer part, page 281. 15 20

**Beacons.**—There are four beacons on Punta della Castagna, two of which are leading beacons through Little passage (page 274). The other two, used as marks for measured distances, are placed higher; the western one is an umbrella-shaped cone on a pole, and the eastern one is a white stone pillar, 20 feet high, on the eastern side of the battery within the point. 25

**Buoys.**—Five pairs of buoys are moored north and south of a line drawn 111° true from Punta della Castagna, at distances of about 10, 16, 21, 27, and 32 cables; vessels must not secure to any of the buoys. 30

**Seno della Castagna**, between Punta della Castagna and Punta Santa Maria,  $2\frac{1}{2}$  cables to the northward, extends about 2 cables westward, and has from  $5\frac{3}{4}$  to 7 fathoms water; on Punta Santa Maria is a battery. View at page 282. There are two mooring buoys in the bay. 35

**Seno del Varignano**, between Punta Santa Maria and Punta del Varignano,  $1\frac{1}{2}$  cables north-westward, extends about 3 cables south-westward, and has depths of from  $4\frac{3}{4}$  to 6 fathoms, but the inner part is shoal. The lazaretto is situated on the small peninsula which terminates in Punta del Varignano. There are four mooring buoys in the bay. 40

Merchant vessels are prohibited from anchoring in either Seno della Castagna or Seno del Varignano, page 282.

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

**Seno delle Grazie**, between Punta del Varignano and Punta Pezzino,  $3\frac{1}{2}$  cables north-westward, extends half a mile south-westward; it has depths of from 5. to 6 fathoms, but shoals  $1\frac{1}{2}$  cables from its head; the bottom is mud. The bay, in which there are twelve mooring buoys, is reserved for vessels in quarantine.

**Seno di Panigaglia**, between Punta Pezzino, on which there is a fort, and Punta Fezzano, about half a mile west-north-westward, extends  $2\frac{1}{2}$  cables southward, and the 3-fathom line is about a cable from its head.

There are fifteen mooring buoys, and one post for adjusting compasses, in the bay.

**Seno del Fezzano**, between Punta Fezzano and Punta Cadimare,  $2\frac{1}{2}$  cables north-westward, has a landing pier off Fezzano village.

**Cala di Cadimare**, north-westward of the point, is small. A new basin is being constructed off Cadimare, and the extremity of a mole in progress, about  $3\frac{1}{2}$  cables north-eastward of Punta Cadimare, is marked by a light-buoy; passage is prohibited between the buoy and the western shore. White square buoys, each surmounted by a staff with a flag, mark the works in progress. The head of the new mole is above water.

**The head** of the gulf is flat, marshy, and partly cultivated; the slopes of the surrounding hills are thickly wooded.

**Dockyard.**—The Royal dockyard (*Lat.  $44^{\circ} 6' N.$ , Long.  $9^{\circ} 49' E.$* ) and arsenal are situated in the north-western corner of the gulf, and are fronted by walls, with landing piers and moles; there are two basins, connected by a narrow passage, besides other small ones, with machinery and everything necessary for building and repairing vessels, including docks, and one 160-ton hydraulic crane. Torpedo and gunnery school vessels are stationed at Spezia.

A sea wall extends over half a mile northward from Cadimare to the entrance of Darsena No. 1, and there are numerous coal sheds on it; at the southern end are the coal wharves for the use of Italian vessels of war, and there are depths of  $1\frac{1}{4}$  to  $5\frac{1}{4}$  fathoms along the frontage. Darsena di San Vito, the entrance to which is northward of the coal sheds, is small and divided into two parts, each with  $1\frac{1}{2}$  fathoms water. The entrance to Darsena No. 1 is about 100 feet wide, and the area of the basin is about 19 acres, with depths of from 4 to 6 fathoms; Darsena No. 2, to the northward, has an area of about 20 acres, with depths of from  $5\frac{1}{4}$  to 6 fathoms. From the entrance to Darsena No. 1 the sea wall trends north-eastward about 3 cables to Molo della Lagora, which extends about 200 yards south-eastward from the sea wall, and north-westward of it is Porticciolo Militaire, a

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

small camber; the Harbour master's office, a yellow building with a flagstaff and landing steps, is situated on the north-eastern side of the entrance to the camber, and from it Molo Mirabello extends 200 yards north-eastward.

**Vecchio Porto Mercantile** is situated within Molo Mirabello; the southern part of the port is occupied by small vessels. The north-western part of the south-western quay is the principal landing place for the town; at night it is marked by a *green gas* light.

**Nuovo Porto Mercantile.**—About 5 cables north-eastward of Molo Mirabello is the extremity of Molo d'Est, which projects about  $3\frac{1}{2}$  cables southward from the north shore of the gulf; the inner part of the mole, 340 yards long, is 59 yards wide, a railway runs along it, and on it are a Custom house and warehouses; the outer part of the mole, 400 yards long, is 5 yards wide, and within the space between Molo Mirabello and Molo d'Est is Nuovo Porto Mercantile, which has depths of  $3\frac{3}{4}$  fathoms. Dredging is in progress in the port; a new mole is to be constructed, and additional quayage provided. There are three electric cranes on Molo d'Est (*Lat.  $44^{\circ} 6' N.$ , Long.  $9^{\circ} 50' E.$* ), which are available on application to the Spezia Chamber of Commerce. A line of mooring buoys for torpedo craft has been placed across the entrance to the port.

**The shore** of the gulf from Molo d'Est trends eastward half a mile and then turns south-eastward  $2\frac{1}{4}$  miles to Punta Santa Teresa; a large area in the north-eastern part of the gulf is occupied by oyster beds.

Pirelli's large telegraph cable works are situated on the shore eastward of the head of Molo d'Est.

San Bartolomeo shipbuilding yard is on the shore about a mile north-westward of Punta San Teresa. A mole about a cable in length projects south-westward from the southern part of the yard.

Molo Fiat San Giorgio extends westward from the shore about half a mile south-eastward of the mole just mentioned.

Punta Calandrello,  $4\frac{1}{2}$  cables south-eastward of Molo Fiat San Giorgio, has a rock with less than 6 feet water, 35 yards off it, and northward of the point is the dockyard of Muggiano or Pertusola.

**Artillery practice** is sometimes carried out from the beach at Muggiano; a red flag is hoisted at the flagstaff of the old Batteria San Bartolomeo during the firing.

**Punta Santa Teresa** has two forts on it, and a mole extends westward about 60 yards.

**Breakwater.**—A breakwater 2,417 yards long, awash, and in places above high water, extends north-eastward across the gulf

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

between Punta Santa Maria and Punta Santa Teresa, leaving a narrow passage at each end; it is constructed of rough blocks of stone, no portion being faced; both ends are above water. There are three  
5 masts on and near the middle of the breakwater.

**Channels.**—The channel between Punta Santa Maria and the west end of the breakwater is 430 yards wide, with a depth of 7 fathoms.

The channel between the mole extending westward from Punta  
10 Santa Teresa and the east end of the breakwater is about 200 yards wide, with a least depth of  $5\frac{3}{4}$  fathoms.

Vessels should go through these channels at a moderate speed.

**LIGHTS.**—**West channel.**—A light is exhibited, at 51 feet above high water, from a staff on a masonry hut, 27 feet high,  
15 on the east angle of the low rampart of Fort Santa Maria.

A light is exhibited, at 54 feet above high water, from an iron trellis mast on a shed, 47 feet high, on the west end of the breakwater.

A fog signal is sounded from the west end of the breakwater.

**East channel.**—A light is exhibited, at 44 feet above high  
20 water, from a staff on a masonry hut, 20 feet high, on the head of the mole extending westward from Punta Santa Teresa.

A light is exhibited, at 34 feet above high water, from a staff on a wooden hut, 27 feet high, on the east end of the breakwater  
(*Lat. 44° 5' N., Long. 9° 53' E.*).

25 A fog signal is sounded from the east end of the breakwater.

**Entrance to Darsena No. 1.**—A light is exhibited, at 34 feet above high water, from a black and white pole surmounted by a disc, on the south pierhead of the entrance to Darsena No. 1, and also from a similar pole on the north pierhead.

30 **Leading lights.**—A light is exhibited, at 157 feet above high water, from a pentagonal masonry tower, 44 feet high, and painted black and white in chequers, and surmounted by a masonry hut, on the town wall at Pegassano.

A light is exhibited, at 95 feet above high water, from a wooden  
35 staff, painted black and white in bands, and surmounted by an open-work disc, on the head of Veleria factory.

A light is exhibited, at 75 feet above high water, from a wooden staff, painted black and white in bands, and surmounted by an open-work disc, on the north-east wing of the head of Veleria factory.

40 **Molo Lagora.**—Lights are exhibited from an iron column, 38 feet high, on the outer end of Molo Lagora.

A light is exhibited from a small mole near the Harbour master's office.

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

A light is exhibited from a post on each side of the entrance to Porticciolo, north-westward of Molo Lagora.

**Porto Mercantile.**—Lights are exhibited from an iron column, 26 feet high, on the head of Molo Mirabello. 5

A light is exhibited, at 22 feet above high water, from an iron frame on hut, painted red, on the head of Molo d'Est.

**Fiat San Giorgio.**—A light is exhibited from the head of Molo Fiat San Giorgio.

**Beacon.—Light.**—A beacon has been erected on the extreme of 10 a mole constructing off Punta Cadimare, from which a light is shown.

**Light-buoys.**—A light-buoy, showing a *green flashing* light every three seconds, is moored on the south side of the works of the Lagora mole, under construction.

A white square light-buoy, exhibiting a *white fixed* light, is moored 15 about half a cable north-eastward of Molo Mirabello; it is surmounted by a pyramid, which is marked "Passare a dritta" (Pass to the right).

**Buoys.**—There are numerous buoys in the gulf, for which see the plan. 20

There is a black and white chequered buoy, with six red buoys at the distance of about  $1\frac{1}{4}$  cables around, 4 cables north-eastward of the western end of the breakwater, for adjusting compasses, and three buoys are placed within the east part of the breakwater for mooring vessels carrying out firing practice. 25

A red can buoy, surmounted by a metal flag, is moored off the end of the Lagora mole extension.

**Pilots.**—The pilot station extends to a line between Isola del Tino and Telaro village (*Lat. 44° 3' N., Long. 9° 56' E.*), on the east shore of the gulf, on which line the pilots take charge. 30

The charge for pilotage is 7 centesimi per ton, with a minimum charge of 20 lire, and a maximum charge of 150 lire.

**Anchorage.**—Golfo della Spezia is easy of access, and affords shelter for vessels of all sizes. Merchant vessels anchor northward of a line between the head of Molo Lagora and Pirelli's works. There 35 are 33 buoys to the southward and eastward of Molo Lagora, marking the positions of naval moorings, and between Molo Lagora and Molo d'Est are moorings for torpedo craft.

**Prohibited anchorages.**—Merchant vessels are prohibited from anchoring:— 40

(a) Between Isola del Tino and Punta Mariella, in a space about 2 cables wide measured westward from the eastern extreme of Isola del Tino and eastward from Punta Mariella.

(b) North-eastward of Isola Palmaria, in a space within a line running 50° true,  $4\frac{1}{2}$  cables, from Punta Mariella; a line running 45

*General charts 157, 1780, 2158a, 449.*



*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

50° true, 7 cables, from half a cable north-westward from Scuola battery; and a line joining the extremes of these two lines.

- (c) In the outer portion of Baia di Porto Venere and Seno della Castagna, north-westward of the preceding zone, within a line from the eastern end of that zone to West breakwater lighthouse; a line from the western end of the same line 335° true to the coast south-westward of Punta della Castagna.

- (d) Within a radius of about 650 yards around West breakwater lighthouse, and within about 380 yards around East breakwater lighthouse.

(e) Between the breakwater and a line joining the northern side of Punta Varignano and the northern side of the prohibited area around East breakwater lighthouse, including Seno del Varignano.

- 15 (f) Within  $1\frac{1}{10}$  miles from the entrance to Darsena No. 1.

(g) Southward of a line joining the head of Molo d'Est to Pirelli's works.

(h) On the oyster beds in the north-eastern part of the gulf.

- Prohibited fishing areas.**—Fishing is prohibited in prohibited anchorage areas (b), (d), and (e). Within about one cable around the north part of Punta del Varignano (*Lat. 44° 4' N., Long. 9° 51' E.*). In Seno di Panigaglia, between Punta Pezzino and Punta Fezzano to a distance of about 4 cables from the middle of the bay. Off the entrance to the dockyard, inside a line drawn 65° true, 8 cables, from the southern end of the coal sheds northward of Cala di Cadimare, then to half a cable south-eastward to Molo Lagora, then to half a cable eastward of Molo Mirabello, and to the shore about 2 cables south-westward of Forte Coppuccini Basso. Off San Bartolomeo building yard, within  $4\frac{1}{2}$  cables on each side of Punta San Bartolomeo, and 2 cables from the shore.

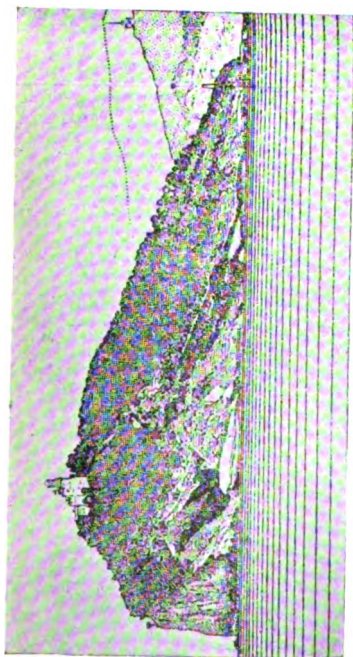
Trawls or other bottom-raking contrivances are prohibited in prohibited anchorage areas (a) and (c).

Dragging the bottom in the gulf is forbidden for any purpose.

- Port regulations.**—Picking up coal or other goods which have fallen overboard is absolutely forbidden in Golfo della Spezia, but special permission can be obtained from the Harbour master's office to recover goods fallen overboard during operations of shipment or landing. Vessels are prohibited from throwing ashes overboard inside the breakwater.

- 40 **Winds.**—Southerly winds prevail in summer, and northerly and north-easterly in winter, but they are seldom dangerous. The scirocco sometimes is strong in winter, and accompanied by rain; it is indicated by Monte Castellana being covered with clouds, and the level of the water in the gulf rising.

*General charts 157, 1780, 2158a, 449.*



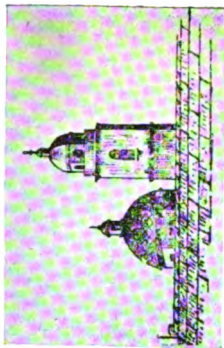
*Beacon on east end of Isola del Tino in line with disc on post near Capodell'Isola.*



*Torre Scuola.*



*Batteria Castagna pillar.*



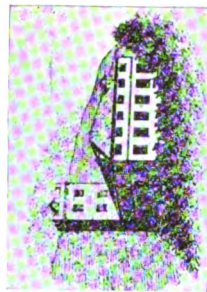
*Porto Veneri campanile.*



*Umbrella shaped beacon on Punta Castagna nearly in line with Porto Veneri campanile.*



*Castello San Toranzo.*



*Casa Fabbricotti.*

**Golfo della Spezia.—Measured distance.—Marks.**



*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

During westerly winds strong squalls come down the gullies of the mountains westward of the gulf.

In fine settled weather of summer the imbatto (sea breeze) sets in from the eastward about 10h. a.m., veers gradually southward and westward, and fails before sunset.

**Measured distances.**—A distance of 6,111 feet has been measured eastward of Isola del Tino; the running course is 57° true. The western limit is a stone beacon, 20 feet high, on the eastern side of Isola del Tino, in line with a post, surmounted by a disc painted black and white in stripes, near Capo dell' Isola; the eastern limit is the pillar on Torre Scuola in line with a white stone pillar in Batteria Castagna.

A distance of 7,139 feet has been measured southward of the breakwater; the running line is a staff on the south side of the tower of Castello San Torengo in line with a staff on the tower of Casa Fabbri-cotti, Bagnola village, 55° true, or an umbrella-shaped beacon on the southern part of Punta Castagna in line with Porto Venere campanile, 235° true. The limits are two poles, about 20 feet high, on masonry pillars, at each end of the breakwater, between and near the light-houses, in line. Views at page 282.

**Spezia** is a well-built town situated near the shore at the head of the gulf on a fertile plain between the Arsenal on the west and Vecchio Porto Mercantile on the east; it is the principal naval port of Italy. The castle eastward of the town is 174 feet above high water.

There are several hospitals, barracks, and other buildings, parks, and gardens, with a network of roads over the surrounding country. The population was 74,278 on 31st December, 1913.

A British Vice-Consul is stationed here.

**Fortified port.**—Spezia is a fortified port. See Regulations, page 30.

**Storm signals** are shown from a flagstaff near the Harbour master's office. See page 17.

**Time signal.**—A gun on the bastion at the root of Molo Lagora (*Lat. 44° 5' N., Long. 9° 50' E.*) is fired electrically at noon Standard time, or 23h. 00m. 00s. Greenwich mean time.

**Trade.**—The principal industries are shipbuilding, manufacture of telegraph cables, patent fuel, &c.; there are marble and sandstone quarries and lead mines in the locality. The imports are coal, manures, grain, wood, and machinery, and amounted to 524,255 tons in 1913; the exports are iron pyrites residuum, bricks, tiles, iron, steel, jute, and lead, and amounted to 41,300 tons.

**Shipping.**—In 1913, 531 steam vessels, of 586,828 tons, and 338 sailing vessels, of 20,498 tons, entered the port.

*General charts 157, 1780, 2158a, 449.*

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

**Supplies** are abundant, and water can be obtained from a pipe near the Harbour master's office, and, probably, from pipes on Molo d'Est, or from municipal tank vessels, on making a verbal request to the municipal authority. Vessels of war obtain water in the dock-  
yard, or from steam-tank vessels, on application to the Port Admiral.

**Coal.**—In 1913, 395,140 tons of coal were imported. Merchants usually keep a stock of about 7,500 tons; it can be put on board by lighters at the rate of 250 to 300 tons a day of 8 hours. Vessels can  
10 coal at all the wharves, with depths alongside of 28 feet and less. This is not a coaling port, except for the Italian Navy, for which the Government keep a stock of coal, and there is no oil fuel on sale.

**Repairs** of any description can be effected at the Royal dockyard and the yards at San Bartolomeo, and also by the Cantiere di Constru-  
15 zione del Muggiano.

**Docks.**—See Appendix I.

**Hospitals.**—There is a naval hospital near the dockyard, with a branch at Porto Venere. Sant' Andrea civil hospital has 146 beds, and receives foreigners at a charge of 2 lire 20 centesimi a day in the  
20 wards, and 5 lire in surgical or 4 lire in medical cases in separate rooms.

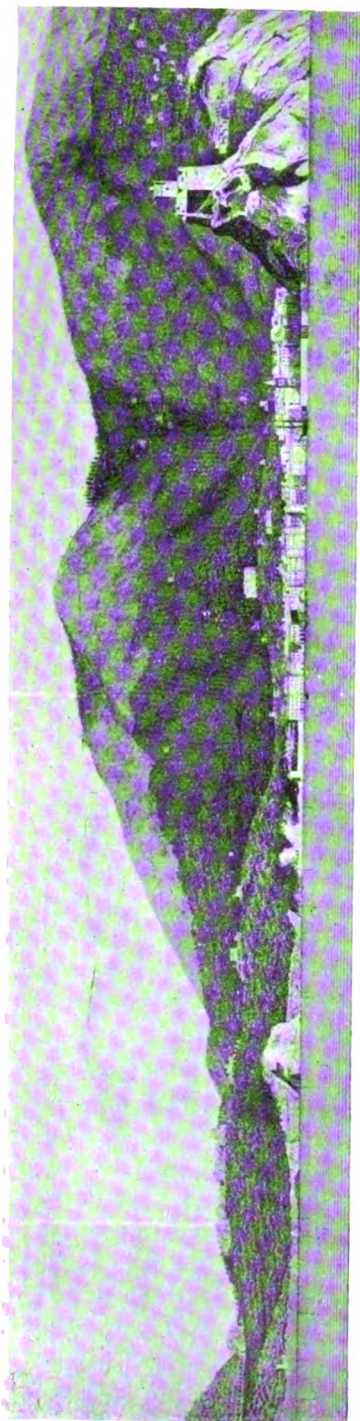
**Communication.**—There is railway communication with Genoa and Pisa, and also with Parma. The telegraph office is always open.

**The coast.**—Punta di Maralunga (*Lat. 44° 4' N., Long. 9° 54' E.*) lies 1½ miles south-eastward of Punta Santa Teresa, and Seno di Lerici extends about 6 cables north-eastward between them. Punta della Galera, 2½ cables eastward of Punta Santa Teresa, with Cala Chiapparò (Chiappara), small and shallow, between, has a flagstaff with a  
30 masonry base on it; 1½ cables northward of the point is a battery, 328 feet above high water. About 3½ cables eastward of Punta della Galera is a point on which is an old castle and a small pier off its eastern side. Northward of the castle is San Terenzo village.

**Lerici.**—A point, on which is a large and conspicuous old castle  
35 surmounted by a tower, projects westward about 1½ cables from the shore three-quarters of a mile south-eastward of San Terenzo, and a mole extends some 50 yards north-westward from it; the mole is being lengthened about 55 yards, and the works are marked by buoys. View at this page.

**The port** is the bight northward of the point and the little town Lerici is on its shores; a long wooden pier extends westward from the town. The 3-fathom line is about 1½ cables off the east shore of the port.

*General charts 157, 1780, 2158a, 449.*



*Barcola.*

Golfo della Spezia ; Lerici.

*Mole lighthouse,  
bearing 97° true, half a mile.*



*Fort Inglese  
Torre Martello,  
302° true, about 2 cables.*

Isola d'Elba ; Porto Ferrajo, from the anchorage.

4

*Plan 155, Gulf of Spezia. Var. 9° 20' W.*

Secca Lavoina, about 2 cables north-eastward of the molehead, and nearly half a cable off-shore, is small, rocky, and marked by an iron staff, 5 feet high, with flag.

**Light.**—A light is exhibited, at 23 feet above high water, from a red iron column, near the molehead at Lerici. The light will be moved to the extreme of the extension of the mole on its completion. 5

**The coast** from Punta di Maralunga trends south-eastward 3 miles, to Punta Corvo; it is indented by Maramozza, Fiascarino, and other small bays southward to Telaro village,  $1\frac{1}{2}$  miles distance; thence it is high and cliffy to Punta Corvo, with rocks close off the points; there are many scattered houses on the hill slopes. 10

**Punta Corvo**, the eastern entrance point of the gulf, is high and cliffy, with some rocks close off it; half a mile northward of the point is Monte Marcello, 886 feet high, with the village, church, and tower of the same name. 15

*Chart 157, San Remo to Cape Cavallo.*

**Punta Bianca** (Lat.  $44^{\circ} 3' N.$ , Long.  $9^{\circ} 59' E.$ ), three-quarters of a mile eastward of Punta Corvo, is rocky and marked by whitish spots near the sea. 20

**Fiume Magra**, the mouth of which is of considerable breadth, flows into the sea on the east side of Monte Marcello and about three-quarters of a mile north-eastward of Punta Bianca. The mouth, which is marked by high trees on both banks, is barred by a shifting sandbank, but there are two channels available for small craft. 25

**Caution.**—Approaching from the south-eastward in rather thick weather, with Isola Palmaria and Porto Venere mountains not showing clearly, and Isola del Tino and Punta del Mesco obscured, the low Magra valley has been mistaken for Golfo della Spezia, and the spur from the high land terminating in Punta Bianca for the western shore of the gulf. 30

**The coast** from the mouth of Fiume Magra trends south-south-eastward 25 miles to the mouth of Fiume Arno, and is low and sandy; it forms Golfo della Magra, which is about 5 miles in depth. The slopes of a high range of mountains approach to about 3 miles from the north-east shore of the gulf; Monte Sagro, 5,738 feet, Monte Altissimo, 5,213 feet, and Pania della Croce, 6,100 feet, are the chief summits. Southward is the extensive plain of Pisa in which are several lakes, with a group of mountains, named Monti Pisani, rising on the left bank of Fiume Serchio, between the cities of Lucca and Pisa. The 5-fathom line is about half to three-quarters of a mile off-shore, and the 3-fathom line 2 to 3 cables; the bottom is chiefly mud. 40

*General charts 157, 1780, 2158a, 449.*



*Chart 157, San Remo to Cape Cavallo. Var. 9° 20' W.*

The shore between Fiume Magra and Viareggio should not be approached to less than  $2\frac{1}{2}$  cables, and the lead should be used.

**Marina d'Avenza (di Carrara)** is a long line of houses near the beach, about  $1\frac{1}{2}$  miles south-eastward of the mouth of Fiume Magra. Three long wooden piers extend off the beach, and there are about 11 feet water at their heads, which are fitted with rails and cranes, for shipping marble; there are no landing steps.

**Lights** are usually exhibited from the pierheads.

**Anchorage** off the Marina is not very safe, but in fine weather it may be obtained about 2 cables off-shore, between the piers.

**Avenza and Carrara** are situated about one and  $2\frac{1}{2}$  miles, respectively, to the north-eastward. Avenza is on the Genoa-Pisa railway.

**San Giuseppe**, 3 miles south-eastward of Marina d'Avenza, is a group of houses on the shore, off which is a long wooden pier with a crane on its head. Fiume Frigido flows into the sea here.

**Light.**—A light is usually exhibited from the pierhead.

**Fortified ports.**—The mouth of Fiume Magra and Marina d'Avenza are considered fortified ports. See page 273 and Regulations, page 30.

**Fortino Cinquale**, on the beach  $2\frac{1}{2}$  miles south-eastward of San Giuseppe, is small and quadrangular, with a yellow house on it.

**Forto dei Marmi**,  $2\frac{1}{2}$  miles south-eastward of Fortino Cinquale, is marked by the houses of the village, which extends along the beach; a long pier, with a 10-ton crane on its head, and also a pier belonging to the powder factory, project from the shore. There are some red and white spots on the side of the mountain within the village, which are very noticeable when the sun shines fully on them.

**Lights** are exhibited from the pierheads.

*Plan, Viareggio, on chart 157.*

**Viareggio town** (*Lat. 43° 52' N., Long. 10° 15' E.*), 6 miles southward of Forte dei Marmi, is situated on the north side of Canale della Burlamacca, a small stream. The port is formed by two moles, one on each side of the stream; North mole is 415 yards long, and South mole 362 yards; the width of the port is about 65 yards, and it has depths of from one to  $1\frac{1}{4}$  fathoms. A bank with 3 fathoms and less water extends 2 cables off the mole-heads, and the 5-fathom line is about 6 cables distant from them. A mole is being constructed off the shore  $2\frac{1}{2}$  cables southward from the south mole of the port; a length of 160 yards has been completed. The beach in this locality is extending seawards about 11 feet annually.

*General charts 157, 1780, 2158a, 449.*

*Plan, Viareggio, on chart 157. Var. 9° 20' W.*

There is an export trade in marble, and the town is much frequented in summer for sea bathing.

**LIGHTS.**—A light is exhibited, at 46 feet above high water, from a white octagonal tower, 39 feet high, with a white rectangular dwelling attached, situated near the root of North mole. 5

A light is exhibited, from an iron trellis support, 18 feet high, and painted red and white in horizontal stripes, near North molehead. 10

A light is exhibited, from an iron trellis support, 18 feet high, and painted black and white in horizontal stripes, near South molehead. 15



Viareggio.—Lighthouse near root of North mole.

Lights mark the outer end of the mole constructing to the southward of South mole, and should be given a berth of not less than 165 yards to avoid the works under water.

**Signal mast.**—An iron signal mast (*Lat. 43° 52' N., Long. 10° 15' E.*), 90 feet high, is situated about a cable inland, and 4 cables southward of the lighthouse near the root of North mole. 20

**Anchorage** off Viareggio is indifferent, as it is open to westerly winds, and the holding ground is not good; anchor about one mile westward of the moles, in 6½ fathoms, sand. 25

**Artillery practice.**—Vessels must not approach the coast within 2 miles between Viareggio and the mouth of Fiume Morto, 7 miles to the southward, during gun firing. When firing is taking place red flags are hoisted at the flagstaff southward of Viareggio, and near the Customs barracks at Migliarino and San Rossore. One blank charge is fired before the practice begins, or if heavy guns are to be fired, two volleys one hour before, and one charge immediately before the commencement. 30

*Chart 157, San Remo to Cape Cavallo.*

**Fiume Serchio** flows into the sea 5 miles southward of Viareggio, and its mouth is almost completely obstructed by sandbanks. There is an old fort about half a mile southward of the river mouth, and Fiume Morto flows into the sea about 1½ miles further southward. 35

The city of Lucca, renowned for its manufacture of silk, is situated on the plain 10½ miles east-north-eastward from the mouth and on the left bank of Fiume Serchio. 40

*General charts 157, 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 9° 20' W.*

**Fiume d'Arno** rises on Monte Falterona of the Apennine range, 25 miles northward of Arezzo; it flows by a circuitous course to Florence, thence westward through a rich valley to Pisa and the sea, about  $7\frac{1}{2}$  miles northward of Leghorn. It is navigable by boats to Florence, a distance of 60 miles; its mouth is barred by a sandy islet (*Lat. 43° 41' N., Long. 10° 16' E.*), which leaves a passage on each side. Sandbanks extend off the entrance, which should not be approached within a mile. There is a fort on the south entrance point.

The ancient city of Pisa, with its famed campanile or leaning tower, is situated, in a marshy but fertile plain, about 6 miles east-north-eastward from the mouth of the Arno.

**The coast** from the mouth of the Arno trends southward  $7\frac{1}{2}$  miles to Leghorn; it is thickly wooded, and the country is low and marshy, with several small lakes; there is a fort near the sea  $3\frac{1}{4}$  miles southward from the entrance to the Arno, and  $2\frac{3}{4}$  miles further southward Canale di Calambrone flows into the sea. The 5-fathom line is from a half to  $1\frac{1}{2}$  miles off the coast southward to Canale di Calambrone.

*Plan 2554, Leghorn roadstead.*

**Banchi della Meloria**, of sand and mud, with occasional patches of rock and weed, extends about 4 miles north and south, with a width of from one to 3 miles, within the 5-fathom contour line; it lies off Leghorn, parallel with the coast, from which it is distant 3 miles, and shelters the roadstead from westerly winds.

The greater portion of the bank has from  $1\frac{1}{4}$  to 3 fathoms water; the shoalest part is a rocky patch, awash, and with less than 3 feet water, near the south end. Torre della Meloria, a square building, 65 feet high, with arched openings at the base, is on this patch and about a cable southward of it is a lighthouse erected on iron piles.

**Secca di fuori** (Outer shoal), nearly 4 cables in extent, with  $4\frac{1}{2}$  fathoms least water, is situated about  $1\frac{1}{2}$  miles westward of Testa di Ponente, the western head of Banchi della Meloria. There are depths of from  $6\frac{1}{2}$  to 9 fathoms in the passage between it and the principal bank. The 100-fathom line is about 10 miles westward of Banchi della Meloria.

The sea breaks over the whole of Banchi della Meloria during southerly and westerly gales.

*General charts 157, 1780, 2158a, 449.*

*Plan 2554, Leghorn roadstead. Var. 9° 10' W.*

**LIGHTS.**—A light is exhibited, at 33 feet above high water, from a black iron framework in a black light-vessel, moored at the north end of Banchi della Meloria. *Meloria Nord* is painted on the vessel in white letters.

Should the vessel get much out of her proper position the lower half of the framework will be covered with white calico, so that the framework will appear to be painted lower half white and upper half black. The principal light will not be exhibited, and the vessel will show only the anchor light.

The vessel is sometimes replaced by a light-buoy.

A fog signal is sounded on board the light-vessel.

A light is exhibited, at 60 feet above high water, from a white hexagonal house, supported by iron piles and framework, 52 feet high, on the south end of Banchi della Meloria.

Signals for assistance are made from the light-vessel and lighthouse. See page 34.



Banchi della Meloria light-vessel.



Banchi della Meloria lighthouse and tower.

**Clearing marks.**—Livorno high lighthouse in line with the peak of Monte Nero (*Lat. 43° 30' N., Long. 10° 21' E.*), view B on plan, bearing 140° true, leads north-eastward, and the northern hummock of the group of hills behind Leghorn open southward of the high lighthouse and the lighthouse on the southern end of Diga curvilinea (in line), 78° true, view A on plan, leads southward of the bank.

The bank is covered by the *white* sectors of Diga curvilinea north and Diga curvilinea south lights.

*Plan, Port of Leghorn, on 2554.*

**PORT OF LEGHORN (Porto di Livorno)** comprises Porto Nuovo, or l'Avamporto (Outer port) and Porto Vecchio.

**Porto Nuovo** is within Diga curvilinea, a detached curved mole, extending  $6\frac{1}{2}$  cables north and south in front of Porto Vecchio, and nearly half a mile off-shore; the mole is being extended about 4 cables north-north-westward from the north lighthouse on Diga curvilinea, and the new part will be known as Diga di Tramontana.

*General charts 157, 1780, 2158a, 449.*

*Plan, Port of Leghorn, on 2554. Var. 9° 10' W.*

Diga del Marzocco extends about 8 cables south-westward from Torre del Marzocco, an old tower, built of white marble, with a conical red roof and a projecting gallery near the top, situated on the beach  
5 half a mile northward of the city.

Diga della Vegliaia, 46 feet wide, extends westward 540 yards from its eastern head, which is situated on Secca Vegliaia, a patch of rocks about 3 cables westward of Punta Cavallegerri, and shelters the port from southerly winds and sea.

10 Secca Piana, about  $2\frac{1}{2}$  cables eastward of the south head of Diga curvilinea, is a ledge of rocks above water, but a portion continues westward about three-quarters of a cable under water. A square masonry beacon, 7 feet high and painted black and white in horizontal stripes, stands near the western end of the shoal water. Shoal water  
15 extends eastward to the shore between the eastern end of Diga della Vegliaia and Secca Piana, and thence northward to the north end of Molo Mediceo.

The north channel into the port, between the north end and extension of Diga curvilinea and the outer ends of Diga del Marzocco and  
20 Diga rettilinea, has a least width of about 2 cables.

The south channel into the port is about 3 cables wide between Diga della Vegliaia and the south end of Diga curvilinea, and about  $1\frac{1}{2}$  cables wide eastward of the south end of Diga curvilinea.

**New port.**—A new port is being constructed between Diga del  
25 Marzocco and Diga rettilinea; it is to be dredged to a depth of 29 feet.

**Porto Vecchio** (*Lat. 43° 33' N., Long. 10° 18' E.*) is within Diga rettilinea on the north-west and Molo Mediceo on the south-west.

Diga rettilinea extends nearly 3 cables south-westward from the  
30 shore east-north-eastward of the lighthouse on the northern part of Diga curvilinea. Molo Mediceo extends nearly  $4\frac{1}{2}$  cables north-north-westward from the shore eastward of Secca Piana. The entrance to the port, between the heads of Diga rettilinea and Molo Mediceo, is about 100 yards wide.

35 Porto Mediceo, eastward of Molo Mediceo, is about 3 cables long north and south, and 2 cables wide. Punto Franco is on the north side of the port, and on it are petroleum stores; Customs wharf is on the east side of the port, and the Captain of the Port's office is at its north end. There is a swingbridge over a passage leading to Darsena  
40 Nuova, on the south-eastern side of the port.

Darsena Mandraccio or Bacino Punto Franco, between Diga rettilinea and Punto Franco, is about 300 yards long and 150 yards wide, and to the eastward of it is the narrow Bacino Commerciale.

Darsena Vecchia is in the middle of the east side of the port, and  
45 on its north side is Fortezza Vecchia with a flagstaff.

*General charts 157, 1780, 2158a, 449.*

*Plan, Port of Leghorn, on 2554. Var. 9° 10' W.*

Darsena Nuova, in the south-eastern part of the port, is small and narrow; on its north side is a dry dock and patent slip, and on its south side two slips.

**Depths.**—There are depths of from 17 to 30 feet in the north entrance to Porto Nuovo, and of from 30 to 40 feet in the fairway of the south entrance; in the port there are depths of from 20 to 30 feet, but the water shoals gradually eastward to Molo Mediceo, alongside which there are 10 and 12 feet. 5

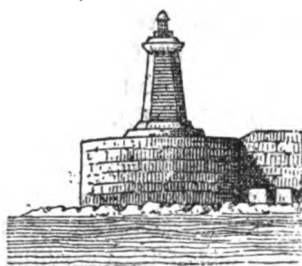
There is a least depth of 22 feet in the entrance to Porto Vecchio, and depths of from 21 to 27 feet in Porto Mediceo, of 23 feet in Darsena Mandraccio, of 28 feet in Bacino Commerciale, of 13 to 21 feet in Darsena Vecchia, and of 9 to 27 feet in Darsena Nuova. 10

**Dredging** is in progress over a considerable area in the Port of Leghorn, and in the entrance. The mooring chains of the dredger are marked by red flags by day and red lights at night. The dredger, when at work, will show three black balls, placed vertically, by day, and three red lights, placed vertically, besides a white light at each end, at night. 15

**Caution.**—Until further notice, owing to dredging operations, the north entrance to the port should not be used for navigation, and vessels must enter and leave by the south entrance. 20

**LIGHTS.**—**Diga del Marzocco.**—A light is exhibited, at 16 feet above high water, from a metal hut near the outer end of Diga del Marzocco. 25

**Diga curvilinea.**—A light is exhibited, at 74 feet above high water, from a yellow octagonal tower, on a circular base, 67 feet high, on the north head of Diga curvilinea (*Lat. 43° 33' N., Long. 10° 17' E.*). 30



Diga curvilinea, north head lighthouse.

An occasional auxiliary light is exhibited, at 33 feet above high water, from the northern end of Diga curvilinea, below the light just mentioned. 35



Diga curvilinea, south head lighthouse. 40

A light is exhibited, at 74 feet above high water, from a yellow octagonal tower, on a circular base, 67 feet high, on the south head of Diga curvilinea.

*General charts 157, 1780, 2158a, 449.*

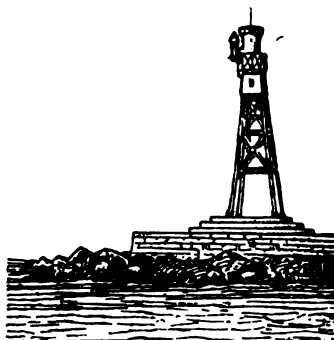
*Plan, Port of Leghorn, on 2554. Var. 9° 10' W.*

**Diga rettilinea.**—A light is exhibited, at 14 feet above high water, from a window in a masonry tower, 20 feet high, adjoining a little white house on the head of Diga rettilinea; the lantern is painted red.



Diga rettilinea lighthouse.

**Diga della Vegliaia.**—A light is exhibited, at 56 feet above high water, from an iron pyramidal framework, supporting a hut, 44 feet high, painted white, upper part and lantern green, on the west end of Diga della Vegliaia.



Diga Vegliaia lighthouse.

**Livorno.**—A light is exhibited, at 154 feet above high water, from a whitish circular tower, with two battlements, on a base with 13 sides, 150 feet high, on the south-western angle of Secca Piana (*Lat. 43° 33' N., Long. 10° 18' E.*).

**Light-buoy.**—A light-buoy, exhibiting a green fixed light, is moored about 3¼ cables north-north-westward of the lighthouse on the north end of Diga curvilinea, to mark the north extreme of the works in progress for the construction of Diga di Tramontana.



Livorno high lighthouse, on Secca Piana.

**Buoy.**—A mooring buoy lies in Porto Mediceo, 150 yards westward of the Captain of the Port's office.

*Plan 2554, Leghorn roadstead and port.*

**Pilots** go out to vessels flying the pilot signal; pilotage is compulsory, and no vessel should enter the port without one. The pilot station is eastward of Banchi della Meloria, and includes the ports of Leghorn. The pilot's office is on Molo Mediceo near the south-west corner of Porto Mediceo. Pilot boats and regulations, *see* page 19.

*General charts 157, 1780, 2158a, 449.*

*Plan 2554, Leghorn roadstead and port. Var. 9° 10' W.*

The charge for piloting a vessel into the port is 10 centesimi per ton net, with a minimum charge of 20 lire and a maximum charge of 200 lire, and for piloting a vessel out of the port the charge is 7 centesimi per ton, with a minimum charge of 15 lire and a maximum charge of 100 lire. This charge is reduced for an out-going vessel which employed a pilot on entering; a vessel of any size employing a pilot outside Banchi della Meloria pays an extra charge of 25 lire. The charge for moving a vessel inside the port is 3 centesimi per ton, with a minimum of 15 lire.

**Approach.**—Isola Gorgona, 18 miles west-south-westward from the port, is 837 feet high and conspicuous. Monti di Livorno rise a little southward of the city, and stretch to the eastward; the city of Pisa, with its leaning tower, situated on the plain to the northward, and Monti Pisani, are noticeable.

The large building of the Naval Academy, Livorno high lighthouse (*Lat. 43° 33' N., Long. 10° 18' E.*), the cathedral campanile, Dominican church dome, Torre del Marzocco, Torre della Meloria, and the lighthouse near it, are also conspicuous.

Vessels are not permitted to enter Porto Vecchio during heavy southerly and westerly gales.

**Directions.—North channel.**—Pass northward of Banchi della Meloria light-vessel, and bring Livorno high light in line with the lighthouse on the north head of Diga curvilinea, 155° true. Keep this mark on until Banchi della Meloria lighthouse bears about 210° true, when steer to one of the anchorages in the road. North channel into Porto Nuovo is closed to navigation at present.

**At night.**—Pass northward of Banchi della Meloria, enter the green sector of Diga curvilinea north head light, and keep that light in line with Livorno high light; anchor in the road with the high light bearing about 137° true, when it is a little open south-westward of Diga curvilinea north head light, and Banchi della Meloria light 220° true.

**South channel.**—Approach the south channel into Porto Nuovo with Livorno high lighthouse in line with the campanile of the cathedral, 60° true, which mark leads about 1½ miles south-eastward of the 5-fathom contour of Banchi della Meloria, and about a cable northward of Diga della Vegliaia lighthouse; thence pass about half a cable south-eastward of Diga curvilinea south head lighthouse, and steer northward in the port.

For the road, steer northward passing about a mile outside Diga curvilinea, and anchor in either of the berths mentioned below.

**At night** approach with Livorno high light open southward of Diga curvilinea south head light, and bearing about 60° true; when

*General charts 157, 1780, 2158a, 449.*



*Plan 2554, Leghorn roadstead and port. Var. 9° 10' W.*

Banchi della Meloria light bears 330° true, steer 31° true, and anchor when Diga curvilinea north head light bears 96° true, distant one mile. To enter the port, pass between Diga della Vegliaia light and

- 5 Diga curvilinea south head light, round the latter light at the distance of half a cable, and steer northward in the port.

Diga della Vegliaia light (*Lat. 43° 32' N., Long. 10° 17' E.*) is obscured over the shoal water to the eastward of it; there is no ship passage eastward of the mole.

- 10 **Leghorn road**, between Banchi della Meloria and the coast, affords good anchorage in from 4 to 9 fathoms, sand, mud, and weeds. The ground is very uneven, and there are numerous knolls with depths of from 3½ to 4½ fathoms.

With the wind off-shore there is smooth water, but heavy squalls

- 15 occur occasionally; southerly winds send in a heavy ground swell.

Anchor with Torre Marzocco in line with Torracchia, 104° true, and Meloria lighthouse 220° true, in 6 fathoms; or with Diga curvilinea north lighthouse 122° true, and Meloria lighthouse 232° true, in 6½ fathoms. There is also anchorage in moderate weather about a

- 20 mile westward of Diga curvilinea north lighthouse, with Torre Marzocco, 65° true, and Diga della Vegliaia lighthouse, 139° true, in from 7 to 9 fathoms; the 5-fathom line is about a quarter of a mile northward of this position.

- Winds.**—Westerly and north-westerly winds (*imbatto*) prevail in 25 the fine season of summer, and south-easterly to south-westerly winds in winter. The strong south-westerly winds usually last three days, commencing on the first day, increasing on the second, and declining on the third.

- 30 South-easterly winds are indicated by hairy-looking clouds over Monte Nero and Isola Gorgona.

**Currents.**—The current in summer, with persistent north-westerly winds, generally sets strongly southward through the road and Porto Nuovo, but with south-easterly and south-westerly winds the current sets northward.

- 35 **Tugs.**—There are several tugs, but there is no fixed charge, so it is necessary to make an agreement before engaging one.

- Telegraph cables** between Leghorn and Macinaggio, in 40 Corsica, and between Leghorn and Isola Gorgona, are landed near the public baths, a little northward of Punta Cavalleggeri, and anchorage is prohibited in their vicinity.

**Sea level.**—The water occasionally rises 1¼ feet above its normal level in the port of Leghorn; south-westerly winds cause the highest

*General charts 157, 1780, 2158a, 449.*

*Plan 2554, Leghorn roadstead and port. Var. 9° 10' W.*

rise. In July, 1888, rises occurred at intervals of from half an hour to an hour, and about a quarter of an hour after each rise the water rushed out of the port, where the streams caused considerable inconvenience to vessels; the wind at the time was from west-south-west 5 and moderate in force, with a corresponding sea.

**Port regulations.**—Vessels on arrival are to anchor in Porto Nuovo, near Diga curvilinea, so as not to impede the entry and exit of other vessels. On receiving pratique they are to anchor in the position assigned to them by the agent of the Captain of the Port. 10

Vessels under observation for quarantine are to moor near the north end of Diga curvilinea, with one anchor in summer and two in winter, and their sterns hauled to bollards on the mole by two or more hawsers.

If, on account of heavy south-westerly winds, it is necessary to lie 15 head to the sea, the stern hawsers are to be taken to the bows, in order to keep the vessel near the mole, and to be able to secure as before on the wind moderating.

Entry into Porto Vecchio is prohibited to any vessel subject to medical inspection. 20

Vessels of war, and vessels which have anchored in Porto Nuovo by order, must haul their sterns to the central or southern portions of Diga curvilinea, and, should strong south-westerly winds set in, shift the hawsers to the bows as above directed.

Vessels placed in quarantine are to anchor in Leghorn road. 25

Vessels of war and merchant vessels must land all munitions of war at Fortezza Vecchia (*Lat. 43° 33' N., Long. 10° 18' E.*) before mooring in Porto Vecchio.

Vessels on entering Porto Vecchio must rig in their jibbooms and brace their yards forward. 30

Vessels in Porto Vecchio are moored at right angles to the quays, except at the petroleum quay, where they go alongside. The outer part of Moio Mediceo is reserved for large steam vessels, and the inner part for large sailing vessels.

Vessels in Porto Nuovo, or alongside Diga rettilinea, or near the Captain of the Port's office, and the outer vessel or vessels at the head of a line on the side of Porto Vecchio are to carry an anchor light. 35

Vessels are prohibited from anchoring off the Captain of the Port's office. 40

Vessels in Porto Mediceo are not allowed to load or discharge inflammable cargoes; this must be done, with permission previously obtained, in an isolated position in Porto Nuovo, or alongside the outer part of Diga rettilinea, and a watchman must be kept on board, but the

*General charts 157, 1780, 2158a, 449.*

*Plan 2554, Leghorn roadstead and port. Var. 9° 10' W.*

watchman may not be required in vessels with straw, hemp, benzine, or spirit or board packed in cases, nor in vessels loading or discharging petroleum or methylated spirit in certain small quantities.

- 5     Darsena Mandraccio may not be entered without a special written permission from the Captain of the port.

Vessels granted permission to go alongside the quays are to leave their berths at the time stated on the permission, whether they have or have not completed loading or discharging, and the completion  
10 must be done in the road.

Vessels secure to Diga rettilinea under special regulations.

Steam boats within the port are to go at a slow speed.

No vessel may remain secured to a warping buoy, but mail steamers may occasionally be allowed to do so for a few hours.

- 15     Ashes and all other rubbish must be put into boats, provided for the purpose, by vessels in the port.

**Leghorn (Livorno) city** (*Lat. 43° 33' N., Long. 10° 19' E.*), eastward of the port, is neatly and regularly built; the streets are broad, and the western part is intersected by canals. In the city are  
20 a cathedral, with a square reddish campanile, several churches, hospitals, library, naval academy, and seamen's reading rooms. The naval academy, on the southern side of the city, is surmounted by a square tower with a flagstaff. Ardenza village is about one mile, and Antignano village, about 2¼ miles southward of the city, and, in summer  
25 evenings, the various bathing establishments on the coast are lit by numerous arc lights until about midnight.

The population of the city was 103,890 in 1911.

A British Consul and a Vice-Consul are stationed here.

**Trade.**—The principal industries are ship-building, metal works,  
30 glass works, tanneries, and straw hat making. Numerous boats go to the coral fishery on the north coast of Africa in summer.

The chief imports are coal, coke, dried and smoked fish, coffee, cotton, tobacco, wheat, and wool, and the chief exports are candied fruits, hemp, hides, marble, mercury, olive oil, and wine.

- 35     In 1913 the value of the imports was £5,873,633, and of the exports £3,648,482.

**Shipping.**—In 1913, 2,450 steam vessels, of 2,721,510 tons, and 2,235 sailing vessels, of 112,769 tons, entered the port; of these, 270 steam vessels, of 420,384 tons, and 4 sailing vessels, of 428 tons, were  
40 British.

**Coal.**—About 275,000 tons of coal are imported annually by various firms, which usually keep about 5,200 tons in stock. Vessels are coaled from lighters, of which there are 50 of about 50 tons each;

*General charts 157, 1780, 2158a, 449.*

*Plan 2554, Leghorn roadstead and port. Var. 9° 10' W.*

labour is plentiful, and about 400 tons can be put on board in a day. There is no oil fuel.

**Supplies.**—Provisions can be obtained. Water is brought alongside vessels in steam tanks and pumped on board; it is good for drinking. 5

**Repairs** of any kind can be executed by the Cantiere Orlando, which are able to build vessels of war and merchant vessels of large size; the offices of the company are at its works in Darsena Nuova. There is a 70-ton crane at the works. 10

**Docks.**—There are a dry dock and a patent slip on the north side, and a patent slip on the south side of Darsena Nuova. For particulars, *see* Appendix I.

**Chronometers.**—There is an astronomical observatory at the naval academy, and comparisons can be made, by request, with the clock there. 15

**Hospitals.**—The united hospitals of Leghorn receive seamen of all nationalities in cases of emergency at a charge per head of 1.95 lire in the common wards; the charge for treatment in a separate room is from 2.45 to 12 lire daily. 20

**Communication.**—There are railways from Leghorn to Pisa and to Cecina, which give through communication from Genoa to Rome *via* Leghorn. The railway station is on the north side of the city. There are electric tramways in the city and to Ardenza and Antignano villages. There is a canal between Leghorn and Pisa. 25

*Plan, Gorgona island, on 1719.*

**ISOLA GORGONA** (ancient Urgos) (*Lat.* 43° 26' N., *Long.* 9° 54' E.), 18 miles west-south-westward from Livorno high lighthouse, is about 1¼ miles long north and south, and 8½ cables broad; it is hilly, and partly wooded. The coasts are generally steep, with a few rocks in places within half a cable. The west coast is precipitous, and Punta Gorgona, the summit of the island, 837 feet high, is about a quarter of a mile within it, and surmounted by a semaphore; a conspicuous old tower stands on the ridge, 682 feet high, northward of the summit. The island is a convict settlement, and landing is prohibited except by permission of the Prefettura di Livorno. The finest anchovies are procured here. 30 35

There are four coves, Cala Maestra on the north-west, Cala dello Scalo and Cala Martino on the east, and Cala Sciro on the south-east. Cala dello Scalo is the principal landing place, and from it the semaphore bears about 250° true; there are a few red houses on the shore, occupied by fishermen. Torre Nuova is a high fort northward 40

*General charts 157, 1780, 2158a, 449.*

*Plan, Gorgona island, on 1719. Var. 9° 10' W.*

of the cove. A mooring buoy lies in 22 fathoms water in the entrance to the cove.

Cala Martino is about 2 cables southward of Cala dello Scalo.

- 5 Cala Sciro is marked by Torre Garibaldi, a square stone tower, 430 feet above high water, on the north-east side; there is anchorage midway between the entrance points of the cove, in 7 fathoms, sand and weed.

Cala Maestra is semicircular, and its entrance is about 3 cables wide.

- 10 **Signal station.**—There is a semaphore on the summit of the island, and 858 feet above high water.

- Telegraph cable.**—A cable from Leghorn is landed on the east coast, near Cala dello Scalo. Two beacons in line mark its direction; the front beacon, with a notice-board, is attached to a house 55 yards  
15 from the beach, and bears 84° true from the rear beacon.

**Communication.**—Steam vessels between Leghorn, Porto Ferrajo, and Civita Vecchia, and between Leghorn, Porto Ferrajo, and Pianosa, call weekly. There is telegraphic communication.

- Soundings.**—The 100-fathom line is about one mile westward  
20 of the island, and about 20 miles off the coast of Italy to the northward. There are soundings of from 55 to 96 fathoms within 5 miles east-north-eastward of the island, whence the depth decreases to Banchi della Meloria.

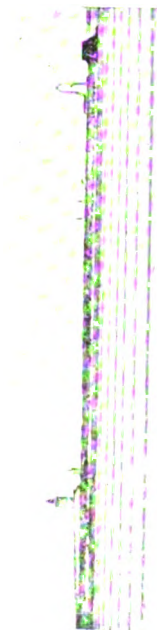
*Chart 157, San Remo to Cape Cavallo.*

- 25 **The coast** from Leghorn trends southward 9½ miles to Punta di Castiglioncello, and is broken and rocky, with rocks in places close off it, and a bank with less than 5 fathoms water extending off half a mile between Ardenza and Antignano villages, one and 2¼ miles, respectively, southward of the city. Monte Burrone, about a mile  
30 south-eastward of Antignano, is 692 feet high, and the peak of Monte Nero, about a mile eastward of it, is noticeable. Torri del Boccale and di Calafuria are situated a short distance apart, on the coast about 1¼ miles southward of Antignano; Castello del Romito, about 1½ miles further south-eastward, is a large light-coloured building, on the  
35 summit of a steep spur from Monte Nero, 298 feet high.

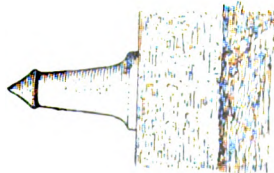
**Signal station.**—A semaphore (*Lat. 43°29' N., Long. 10°21' E.*), with house painted black and white in chequers, is situated, 843 feet above high water, on Montaccio, a hill about 1½ miles south-eastward of Antignano.

- 40 **Measured distance.**—A distance has been measured off the coast southward of Leghorn, and is divided into three sections. The

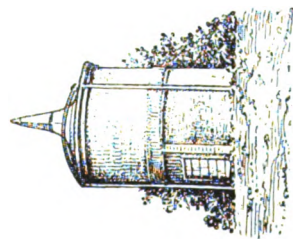
*General charts 2554, 157, 158, 1780, 2158a, 449.*



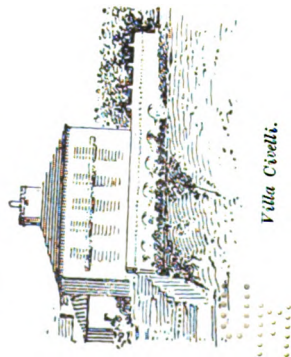
*Diga curvilinea lighthouses.*



*Mark on Vogliaia mole.*



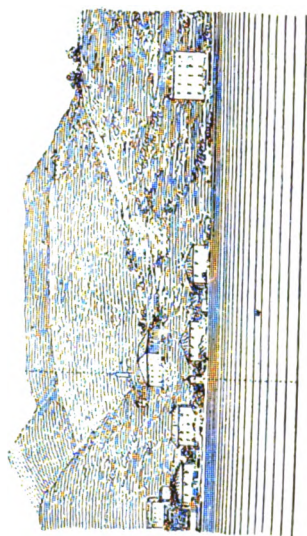
*Tripod on reservoir.*



*Villa Cicelli.*



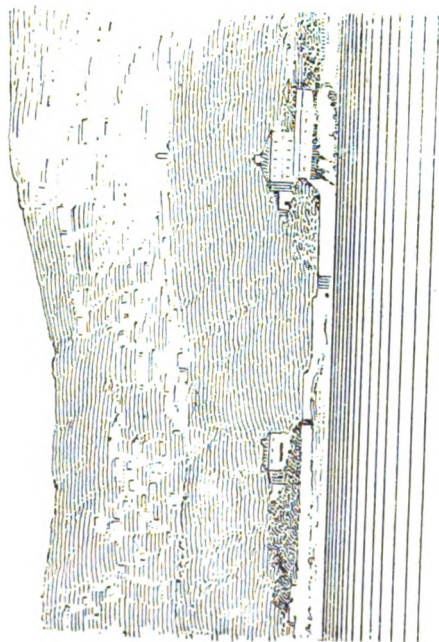
*Villa Malenchini.*



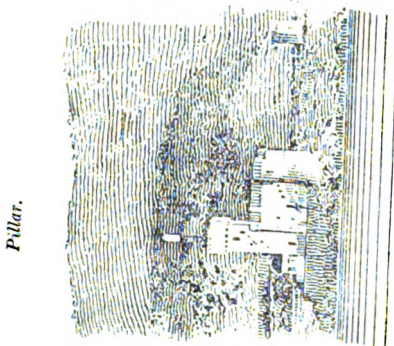
*Banditella pillar and tripod on reservoir in line.*

Leghorn ; measured distances south of ; marks.

14

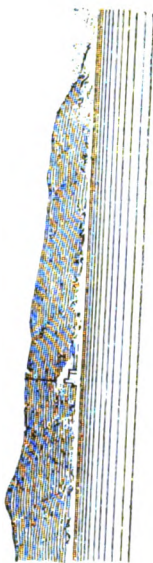


*Pillar.  
Villa Civetti.*

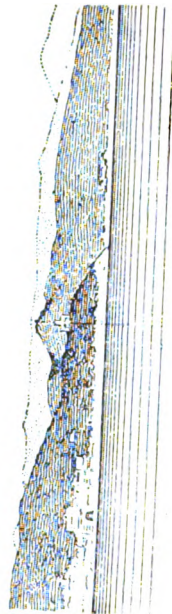


*Pillar.*

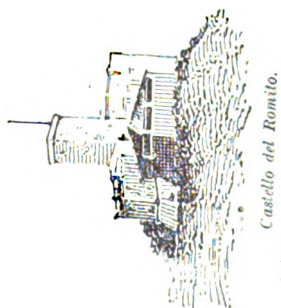
*Torre del Boccale.*



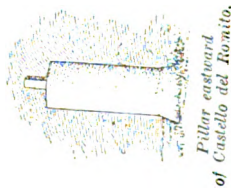
*Pillar.  
Torre del Boccale.*



*Torre Romito and pillar in line.*



*Castello del Romito.*



*Pillar eastward  
of Castello del Romito.*

Leghorn; measured distances south of; marks.





*Chart 157, San Remo to Cape Cavallo. Var. 9° 10' W.*

running course is the two lighthouses on Diga curvilinea in line, bearing 1° true. A third mark has been constructed on Diga della Vegliaia, and is in line with the two lighthouses when on the course.

The north limit is a cylindrical reservoir, surmounted by a white iron tripod, close to the sea in the public gardens a little southward of Villa Mañenchini, in line with a circular tower, 23 feet high, on a saddle of Monte Banditella. The second limit is a white pillar on the small belfry of Villa Civelli, a yellowish building near the sea southward of Antignano, in line with a white pillar, 20 feet high, to the eastward. The third limit is the lightning conductor of the square greyish tower of Torre del Boccale in line with a white isolated circular pillar on a slight rise to the eastward, which is covered with vegetation. The southern limit is the lightning conductor of the grey tower of Castello del Romito, which shows against a green background, in line with a small tower surmounted by a pillar, on the southern side of a small hill, on which are the houses of Nibbiaia village. Views at page 298.

The north section is 5,069 feet long, the middle section 6,886 feet, and the south section 4,943 feet.

**Punta di Castiglioncello** (*Lat. 43° 24' N., Long. 10° 24' E.*) projects about half a mile south-westward, and a few rocks lie close off it; the cape is 164 feet high, and there are many detached houses on it; Villa Martelli, now Patrone, eastward of the houses, is battlemented and noticeable. Rosignano marittimo, a village 3 miles eastward of the cape, and 597 feet above high water, has a conspicuous square campanile. On the south side of the cape is a small bay, and 2½ miles to the southward is the mouth of Fiumara Fine. The coast southward of the mouth of the river is a sandy beach with shoal water extending a considerable distance to seaward, and the country for more than 2 miles inland is low and sandy, with pine woods in places near the sea.

**Vada** is a small village on the coast 1½ miles southward of Fiumara Fine entrance; the campanile of the cathedral is slender and pointed; there is a small landing pier with 5 feet water at its head.

**Bank.**—A bank with less than 3 fathoms water and 5 feet in places extends 1½ miles off the coast between Fiumara Fine and Fiume Cecina, 4½ miles to the southward; the 5-fathom line is from one to 3½ miles off the coast.

**Secche di Vada**, 4½ miles west-south-westward of Vada village, is a rock with 8 feet water, on which is a lighthouse; there are three detached patches to the eastward of the rock, two with 5 fathoms water, and one with 3 fathoms, and 1½ miles south-eastward of the rock are some patches with from 4 to 4½ fathoms water. There are

*General charts 2554, 157, 158, 1780, 2158a, 449.*

*Chart 157, San Remo to Cape Cavallo. Var. 9° 0' W.*

depths of less than  $2\frac{3}{4}$  fathoms within about  $4\frac{1}{2}$  cables westward, and of 5 fathoms about 8 cables westward, of the lighthouse.

- LIGHTS.**—A light is exhibited, at  
 5 55 feet above high water, from an iron framework supporting a hexagonal dwelling, 52 feet high and all white, on Secche di Vada.

- A light is exhibited, at 62 feet above  
 10 high water, from a white pyramidal tower, 49 feet high, on the beach south-westward of Vada village.



Vada village lighthouse.

- Anchorage.**—There is anchorage during off-shore winds on the bank between Secche di Vada and the shore, in from 6 to 8 fathoms  
 15 water, good holding ground. Caution is necessary to avoid the patches above mentioned south-eastward of the rock.

*Chart 158, Cape Cavallo to Civita Vecchia.*

**Capo Cavallo** (*Lat. 43° 19' N., Long. 10° 28' E.*), 2 miles southward of Vada, is round and low.

- The coast** from Capo Cavallo trends southward 19 miles to Punta del Molino, and is low, sandy, and wooded. The mouth of Fiume Cecina is  $1\frac{1}{4}$  miles south-eastward of Capo Cavallo; rocky patches extend one-quarter of a mile off it, and the 5-fathom line is distant  $1\frac{1}{4}$  miles. Marina di Cecina is on the south side of the mouth of the  
 25 river, and Forte di Cecina, in the village, is large and conspicuous. The town of Cecina is about  $1\frac{1}{2}$  miles to the north-eastward. Forte di Bibbona, on the beach,  $4\frac{1}{4}$  miles southward of the mouth of Fiume Cecina, is low, isolated, and consists principally of a reddish circular bastion. Forte di Castagneto, similar to Forte di Bibbona, is on  
 30 the coast 4 miles further southward, and on a hill, 636 feet high, 3 miles to the eastward, is Castagneto church, which has no campanile. Caresta ravine is one mile southward of Forte di Castagneto, and here the hills approach nearer the coast.

- San Vincenzo** is a small village on the beach  $3\frac{1}{2}$  miles southward of Caresta ravine; its church is isolated, and surmounted by a  
 35 campanile. Rocky ledges, almost awash, lie within a cable from the beach; the 3-fathom line is about 2 cables, and the 5-fathom line 4 cables, off-shore.

Modane, Turin, Genoa, and Rome railway is close to the coast here.

- Lights** are exhibited, at 23 feet above high water, from iron arms  
 40 attached to buildings on the beach at San Vincenzo.

**The coast.**—A little southward of San Vincenzo, and about a quarter of a mile inland, is the northern end of Paludi di Rimigliano,

*General charts 157, 158, 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

a swamp, about  $4\frac{1}{2}$  miles long and half a mile wide. There is a coast-guard house  $2\frac{1}{4}$  miles southward of San Vincenzo, off the shore on both sides of which are several rocks. Punta del Molino is 3 miles farther southward, and 2 cables northward of it is Scoglio Stella, a 5 rock above water with no passage between. Eastward of the point is a tower. The low sandy coast terminates here.

**Porto Baratti.**—The coast from Punta del Molino trends southward about half a mile, and is high and rocky; it then forms Porto Baratti, a sandy bay extending about three-quarters of a mile 10 south-eastward from its entrance, which is about a mile wide; a shoal rocky bank extends a quarter of a mile from the head of the port, outside which the depths increase gradually; the bay is open north-westward. Baratti village is on the south-western side of the port, and near it is a small pier; the hills around are wooded. The south- 15 western point of the bay is cliffy and rises to Monte di Populonia, on which is a circular tower, 587 feet above high water, and a village.

**Tunny fishery.**—Tunny nets extend about 160 yards north-north-east and north-north-west from the point under Torre di Popu- 20 lonia, and are marked by cork buoys.

**Promontorio di Piombino** extends 5 miles southward from Torre di Populonia (*Lat. 42° 59' N., Long. 10° 30' E.*), and attains in Monte Massoncello a height of 938 feet; the land between it and the hills to the north-eastward being low, it appears to be an island from 25 a distance north-westward or south-eastward. The west coast of the promontory is bold and cliffy, and there are depths of from 6 to 10 fathoms a short distance off it. Punta Falcone, the south-west point of the promontory, projects considerably to the westward, and 160 yards off it is Scoglio d'Orlando, high and triangular in shape, the passage inside which is obstructed by rocks. 30

*Plan, Porto Vecchio di Piombino, on chart 158.*

**Piombino town**, on the southern side of the promontory, is surrounded by hills; westward of the town, on a hill, is a conspicuous square convent, with a square turret. There are extensive ironworks 35 in the locality.

La Rocchetta mole projects about a cable southward from the town; there is an old square fort on its head, and a small mole extends westward from its inner end. Round the small molehead shelving rocks extend a short distance, and the little port within it is available for small coasting craft. There are from 6 to 8 fathoms 40 within a cable of La Rocchetta mole, but eastward of it the ground is foul. A mooring buoy lies in 6 fathoms water about 2 cables west-

*General charts 1780, 2158a, 449.*

*Plan, Porto Vecchio di Piombino, on chart 158. Var. 9° 0' W.*

ward of the outer end of La Rocchetta mole; it is reserved for the use of the steam vessels which run daily to and from Porto Ferrajo.

**Light.**—A light is exhibited, at 89 feet above high water, from an  
5 iron standard on the old fort at the head of La Rocchetta mole.

**Telegraph cable.**—There is a telegraph cable from a little westward of Piombino to Isola d'Elba.

**The coast** from the root of La Rocchetta mole trends eastward about three-quarters of a mile to the south-eastern point of the promontory, on which there is an old semaphore (*Lat. 42° 55' N., Long. 10° 33' E.*), 226 feet above high water, and then turns northward 4 cables to Punta della Batteria; it is rocky, and the 5-fathom line is from half a cable to 2 cables off it.

*Chart 158, C. Cavallo to Civita Vecchia.*

**CANALE DI PIOMBINO**, between Promontorio di Piombino and Isola d'Elba, is 5 miles broad, but about  $2\frac{3}{4}$  miles eastward of Capo della Vita, the north point of Isola d'Elba, is Isolotto Palmajola, and  $3\frac{1}{4}$  miles eastward of that islet is Isolotto Cerboli. The soundings are irregular, varying from 18 to 30 fathoms; a rock with  $2\frac{1}{2}$  fathoms  
20 water lies  $2\frac{1}{2}$  cables north-eastward, and a rock with 9 fathoms water  $1\frac{1}{4}$  miles northward, of Palmajola. See also pages 311, 316, 317.

**Winds.**—Westerly and north-westerly winds prevail in summer, and north-east and south-easterly winds in winter; the latter cause a heavy sea and are accompanied by rain. In spring there are often  
25 south-westerly gales.

**Currents.**—The currents in the channel generally follow the direction of the wind; they are not very strong in winter, but in summer attain rates of from a half to  $2\frac{1}{2}$  knots, and are strongest in the middle of the channel. Occasionally currents have been observed  
30 setting in directions against the wind.

The coast is continued on page 324.

## ARCIPELAGO TOSCANO.

*Plan, Capraia island, on 1719.*

**ISOLA CAPRAIA** (ancient Ægilon), 20 miles southward of  
35 Isola Gorgona, and 17 miles eastward of Cap Corso, is  $4\frac{1}{2}$  miles long north and south, with a greatest breadth of 2 miles, and of volcanic formation. A high ridge extends along the western side of the island, and Monte Castello, the highest peak, is 1,467 feet high. The coast is bold, cliffy, and steep to except at the north end, off which are some  
40 rocks above water; elsewhere there is a depth of 10 fathoms within a cable of the coast, sand and gravel bottom.

*General charts 158, 1131, 1780, 2158a, 449.*

*Plan, Capraia island, on 1719. Var. 9° 10' W.*

**Capraia town** is situated on Punta Ferrajone, on the north-east side of the island, and on the eastern side of a bay one-quarter of a mile in extent, at the head of which, and within a mole, is a secure port, with a depth of about 11 feet, for small craft. The town has a convent, two chapels and several houses. About a quarter of a mile southward of the point is a fort, 299 feet above high water, on the dark bastions of which is a yellow building surmounted by a slender cylindrical column. There is a penal settlement here with some 500 convicts, and there are also about 200 inhabitants, chiefly fishermen.

**LIGHTS.**—A light is exhibited, at 92 feet above high water, from a white masonry hut, 20 feet high, on Punta Ferrajone.

A light is exhibited, at 16 feet above high water, from an iron support on a square masonry base, 15 feet high, on the head of the port mole.

**Buoy.**—A cylindrical iron mooring buoy lies between Punta Ferrajone and Punta di Porto Vecchio,  $3\frac{1}{2}$  cables north-westward.

**Anchorage.**—The bay is open to north-easterly winds, which cause a heavy sea. There is anchorage in from 12 to 14 fathoms, sand and weeds bottom, but the holding ground is only moderately good.

**Communication.**—Steamers from Leghorn call here twice a week, and from Genoa weekly.

There is telegraphic communication.

**Telegraph cable.**—There is a cable from Punta Ferrajone to Elba; its direction is marked by the alignment of two beacons on the point.

**Signal station.**—There is a semaphore (*Lat. 43° 1' N., Long. 9° 48' E.*) on Monte Arpagna, 1,345 feet above high water, in the south-western part of the island.

The house is painted black and white in chequers.

**Storm signals** are exhibited at the semaphore.

**Tunny fisheries.**—Tunny nets are sometimes laid out to a distance of about half a cable from the coast near Punta di Porto Vecchio and Punta Mortola, 3 and 9 cables, respectively, northward of the port, and near Punta della Fica, half a mile southward of Punta Ferrajone.

**The coast** from Porto di Capraia trends northward  $1\frac{1}{2}$  miles to Punta Teglia, the north point of the island, on which there is a little fort with a turret.

**Scoglio Formiche**, a group of some three rocks above water, the largest being 6 feet high, lies about 2 cables north-eastward of

*General charts 158, 1131, 1780, 2158a, 449.*

*Plan, Capraia island, on 1719. Var. 9° 0' W.*

Punta Teglia; between the Formiche and the point is a rock with one foot water, and from 5 to 10 fathoms around.

- Isolotto la Prajola (Praiola), on, and close to, the west coast of  
 5 Capraia,  $2\frac{3}{4}$  miles southward of Punta Teglia, is high and steep; 4 cables eastward of it is Monte Cancelli, an extinct crater, 1,152 feet high. Punta del Zenobito, the south extreme of the island, is bold, and on it is a circular tower, 273 feet above high water. Lo Scoglione, a rock, lies within about a cable from the coast, one mile north-east-  
 10 ward of Punta del Zenobito.

Punta della Civitata, one mile north-eastward of Lo Scoglione, is the south-eastern extreme of a rocky promontory. The coast from Punta della Civitata trends northward  $1\frac{1}{2}$  miles to Punta Ferrajone.

*Chart 158, C. Cavallo to Civita Vecchia.*

- 15 **ISOLA d'ELBA** (ancient Etalia and Ilva), separated from the main by Canale di Piombino, is 15 miles long east and west, with a breadth varying from 2 to 10 miles; it is high and mountainous, being traversed by three ridges, the western and highest culminating in Monte Capanne (*Lat. 42° 46' N., Long. 10° 9' E.*), 3,343 feet high;  
 20 the formation is chiefly granite, clay-slate, and marble limestone. The west coast is bold; the north and south coasts are broken by a succession of deep bays and rugged headlands; and the east coast is indented by Porto Longone.

- The 5-fathom line is generally from one to  $1\frac{1}{2}$  cables off-shore, and  
 25 only at the head of the principal bays is it from  $2\frac{1}{2}$  to 4 cables distant; spits extend from one to three-quarters of a mile off Capo Fonza, on the south coast, and Capo Bianco and Capo della Vita on the north coast.

- The island is healthy and the soil productive, and there are nume-  
 30 rous springs and rivulets. Excepting the cork and chestnut there are not many forest trees, but evergreen shrubs cover a large extent of the hill slopes, and fruits of various kinds are abundant. Marble is quarried, and iron is most extensively worked, the principal mines being at Rio, in the eastern hills. Some tunny fisheries have been  
 35 established on the north coast of the island, and there are mullet and other fish in the surrounding waters.

- The principal ports are Porto Ferrajo and Porto Longone, both affording safe anchorage to large vessels; Rio Marina, Marina di Marciana, and Golfo di Campo are open anchorages, but in these work  
 40 can be carried on for more than 200 days in the year.

The population of the island was 29,549 in 1911.

There is a British Vice-Consul for Elba and Piombino.

*General charts 158, 1131, 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

**Trade.**—The chief import is coal, and the exports are iron ore, of which 743,000 tons were shipped to Italian ports in 1913, wine, fish, and fruit.

**Shipping.**—In 1913, 5,521 steam vessels of 1,096,363 tons, and 4,498 sailing vessels, of 510,192 tons, entered the ports of Isola d'Elba. 5

**West and north coasts.**—**Punta di Fetovaja (Fetovaia)** is a narrow rocky tongue of land, 121 feet high, projecting about half a mile south-eastward from the coastline near the south-western end of the island. 10

**The coast** from Punta di Fetovaja trends north-westward about  $3\frac{1}{2}$  miles to Punta delle Pietre Albe, the west extreme of the island (*Lat. 42° 46' N., Long. 10° 6' E.*). Pomonte village is on the coast about  $2\frac{1}{4}$  miles north-westward of Punta di Fetovaja, and southward of it, about a cable off-shore, is Scoglio Ogliera. Isolotto Timone is close to the shore about half a mile southward of Punta delle Pietre Albe. 15

**Signal station.**—There is a semaphore at Campo alle Serre, 1,968 feet above high water, about one mile north-eastward of Punta delle Pietre Albe. 20

**The coast** from Punta delle Pietre Albe trends northward about  $1\frac{1}{4}$  miles to Punta Fornace, near which is a rock with one fathom water, and then turns north-eastward half a mile to Punta Polveraja (Polveraia), locally called Punta Forana.

**LIGHT.**—A light is exhibited at 170 feet above high water, from an octagonal masonry tower on a white building, 32 feet high, on Punta Polveraja. 25



Punta Polveraja lighthouse. 30

**The coast** from Punta Polveraja trends east-north-eastward  $1\frac{1}{2}$  miles to Capo Sant' Andre (Andrea). Between Punta della Zanca, three-quarters of a mile from Punta Polveraja, and Capo Sant' Andre, are Formiche della Zanca, 35 three rocks, the outer of which is above water, and about  $1\frac{1}{2}$  cables off-shore; the middle rock shows a black head above water, and the inner one is awash.

The coast from Capo Sant' Andre trends eastward 2 miles to Punta del Nasuto. 40

**Marina di Marciana** is about half a mile south-eastward of Punta del Nasuto, and extends along the beach, to the westward of

*General charts 1780, 2158a, 449.*



*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

which, on a low projecting rocky point, is Torre di Marciana, round and whitish. The square clock tower of the village is noticeable from seaward.

- 5 **Telegraph cable.**—A cable is laid from the shore westward of Torre di Marciana to Capraia; its direction is marked by two beacons. Anchorage is prohibited off the beach westward of Torre di Marciana.

**Mole.**—A mole extends eastward and south-eastward 109 yards from the rocky point westward of the beach of Marina di Marciana.

- 10 **Mooring buoy.**—A red cylindrical mooring buoy lies, in  $5\frac{1}{2}$  fathoms water, about a cable off the beach.

**Anchorage** can be obtained, in  $5\frac{1}{2}$  fathoms, about 2 cables off-shore in front of the village.

- Firing practice** with rifles occasionally takes place from near  
15 Torre di Marciana; during the practice a white flag, with a red disc in the middle, is hoisted at the tower, and then a good berth should be given to the coast between Punta del Nasuto and the tower.

- Golfo di Procchio** lies between the point immediately eastward of Marina di Marciana, which rises to a little hill covered with  
20 trees, and a point about  $1\frac{3}{4}$  miles east-south-eastward; it affords anchorage in about 13 fathoms water, sand bottom.

**Tunny fisheries.**—Tunny nets are laid out about 100 yards east-north-eastward from the shore about 3 cables south-eastward from the west point of the gulf.

- 25 Tunny nets are laid out about 3 cables north-north-eastward from Bagno di Marciana on the west side of the gulf; they are marked by a boat flying a white flag by day and showing a white light at night.

- The coast** from the eastern entrance point of Golfo di Procchio trends north-north-eastward  $1\frac{3}{4}$  miles to Capo d'Enfola, and forms  
30 two bights, named Golfo della Biodola and Golfo di Viticcio. Punta Penisola, which separates the bights, has light-coloured bare rocky slopes.

- Tunny fisheries.**—Tunny nets are laid about half a cable westward from the vicinity of Punta Penisola; also about the same  
35 distance southward from the north point of Golfo di Viticcio, and northward from Capo d'Enfola.

- Capo d'Enfola** (*Lat.  $42^{\circ} 50'$  N., Long.  $10^{\circ} 16'$  E.*) is the extreme of a headland, which is connected to the island by a low isthmus, the whole projecting about three-quarters of a mile north-westward from  
40 the coastline. The headland is 445 feet high, conical in shape, with its upper part covered with a dwarf vegetation, its sides being bare and rocky.

*General charts 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

A whitish conical rock lies close to the south-west side of the headland. Scoglio la Nave, north-westward of and near the cape, is conical and bare. Rocks above and under water extend about  $1\frac{1}{2}$  cables northward from the cape. 5

**Tunny fishery.**—Tunny nets are laid about 700 yards northward from the east part of the headland; they are marked by two rafts with red and white flags at their outer extreme, by day, and by a boat, showing a *white* light, in the middle, at night.

**The coast** from Capo d'Enfola trends eastward  $2\frac{1}{4}$  miles to Capo Bianco. Secca di Santa Lucia, about  $6\frac{1}{2}$  cables north-westward of Capo Bianco, is a rock with 5 fathoms water. 10

*Plan, Port Ferrajo, on 17 19.*

**Capo Bianco** is of moderate height, steep, and white; there are some bushes on it, principally on its western side. Secca di Capo Bianco, a rocky spit, with less than 3 feet water, extends 3 cables north-north-eastward from the cape. 15

**Light-buoy.**—A light-buoy exhibiting a *green flashing* light every three seconds, flash *three-tenths of a second*, is moored about a cable northward of the northern extreme of Secca di Capo Bianco. 20

**Lo Scoglietto**, three-quarters of a mile north-eastward of Capo Bianco, is about three-quarters of a cable long north-east and south-west, a quarter of a cable broad, and 66 feet high; it is bare, blackish in colour, and surrounded by a rocky bank to the distance of about half a cable. There are depths of from 8 to 20 fathoms between the islet and Secca di Capo Bianco. 25

**LIGHT.**—A light is exhibited, at 79 feet above high water, from a circular battlemented tower, 26 feet high, against a small square yellow house, on the middle of Lo Scoglietto (*Lat. 42° 50' N., Long. 10° 20' E.*).



Lo Scoglietto lighthouse. 30

**The coast** from Capo Bianco trends east-south-eastward three-quarters of a mile to Punta Falcone, and thence south-eastward  $1\frac{1}{2}$  cables to a point on which is Fort Stella; the 5-fathom line is from a half to 2 cables off it, and a rocky spit extends nearly a cable north-eastward from Punta Falcone. About 3 cables south-south-eastward of Capo Bianco, and a cable inland, is Forte Inglese, 193 feet above high water, isolated and noticeable. 35

**Rifle practice** occasionally takes place from the vicinity of a beach eastward of Fort Inglese, when a red flag is hoisted at San 40

*General charts 158, 1780, 2158a, 449.*

*Plan, Port Ferrajo, on 1719. Var. 9° 0' W.*

Fine bastion, at the eastern end of the beach, which should then be given a berth of over a mile.

- LIGHT.—Forte Stella.**—A light is exhibited, at 206 feet above high water, from a whitish conical tower, with battlemented parapet, 82 feet high, on the north-east bastion of Forte Stella.

- PORTO FERRAJO (FER-RAIO).**—The entrance to Porto Ferrajo lies between Forte Stella (*Lat. 42° 49' N., Long. 10° 20' E.*) and Punta Falconaja (Falconaia), about one mile to the eastward; the port extends southward

- 1½ miles, and it projects nearly a mile to the westward southward of the promontory which terminates in Forte Stella.

Punta della Torre (Tower point), about 3 cables south-westward from Forte Stella lighthouse, is the extreme of a bastion, and Torre Martello is on it.

- Punta Falconaja is steep and rocky, and from it the coast trends south-south-westward 3¼ cables to Punta Scarpellini. Monte Fortino, 387 feet high, is about 1½ cables southward of Punta Falconaja. Punta Pina is 2 cables southward of Punta Scarpellini, and Cala Bagnaja extends a quarter of a mile eastward between them. Cala Concia is about 3 cables southward of Punta Pina; on its south-east shore is Villa Toscanelli, a large pink house, with a veranda on pillars, and a small mole in front of it.

- A little westward of Villa Toscanelli a sandy beach commences, and extends westward nearly to Punta delle Grotte, distant 1¼ miles. Punta delle Grotte has some trees on it, and about half a mile south-eastward is Mibelli white mill with a chimney.

On both sides of Punta della Grotte, and especially westward of it, the land is flat, and there are several salines or salt pans along the shore.

- Depths.**—There are depths of 20 fathoms in the entrance to the port, which decrease gradually to the 5-fathom line about 3 cables off the south shore.

- A bank with less than 3 fathoms water extends from 1½ to 2½ cables off the south and west shores of the port, and a bar with from 3 to 5 fathoms water connects Punta delle Grotte with Punta della Torre.

A channel, about 80 yards wide, has been dredged to a depth of 30 feet across the bar about three-quarters of a cable southward of Torre Martello, but shoal spits extend about 75 yards southward and



Forte Stella lighthouse.

*General charts 158, 1780, 2158a, 449.*

*Plan, Port Ferrajo, on 1719. Var. 9° 0' W.*

south-westward from the tower; the light on the mole of the Captain of the Port is obscured over the spits. To the westward of the bar is an area, about 4 cables long north-east and south-west and from a half to 3 cables broad, with depths of from 5 to 8 fathoms, and locally known as "La Fossa." 5

**La Darsena**, the entrance to which, between Torre Martello and the short mole of the Captain of the Port, extending south-eastward from Batteria del Gallo, is 130 yards wide, and extends about 250 yards north-eastward with a breadth of 220 yards; there are depths of from  $5\frac{1}{2}$  to 4 fathoms in the middle of the basin, decreasing gradually to the wharves around it; a short mole projects from the head of the basin, and is reserved for mail steamers. The basin is surrounded by the houses of the town, except on the south-east side, where, on the tongue of land named Lìnguella peninsula, which terminates in Torre Martello, is the convict establishment. 10 15

**Seno del Porticello** (*Lat. 42° 49' N., Long. 10° 19' E.*), westward of La Darsena, is shallow, and an iron pier projects about 300 yards east-south-eastward from the western shore, with a depth of 30 feet along the northern side of its outer part. The large ironworks of the Alti forni, with three tall chimneys and a large black cylindrical reservoir, are on the west shore of the bay. There are also four chimneys to the northward of those just mentioned. 20

**Lights.**—A light is exhibited, at 18 feet above high water, from an iron frame over a small house, on the head of the mole of the Captain of the Port. 25

A light is exhibited, at 13 feet above high water, from an iron column on the head of the mole at the head of La Darsena.

Lights are exhibited from an iron standard on the head of the pier in Seno del Porticello. 30

**Buoys.**—There are two cylindrical iron mooring buoys, one large and the other small, in La Darsena.

**Anchorage.**—Anchor in the outer anchorage with Forte Stella lighthouse bearing 359° true, and Torre Martello in line with the north-west extreme of Forte Inglese, 302° true, view at page 284, in 9 fathoms, mud and weeds, and in the inner anchorage with the pier-head in Seno del Porticello bearing 12° true, distant  $1\frac{1}{2}$  cables, in 8 fathoms water. 35

**Winds** from the eastward between north and south, especially between south and south-east, prevail in winter, when sometimes northerly winds are fresh, and cause much sea in the outer anchorage. In spring and summer north-west and south-east winds prevail, and 40

*General charts 158, 1780, 2158a, 449.*

*Plan, Port Ferrajo, on 1719. Var. 9° 0' W.*

there are sometimes violent south-westerly gales. North-westerly winds in summer are sometimes so strong as to oblige vessels in the outer anchorage to drop a second anchor, but they generally decline  
5 some hours after sunset.

Monte Capanne seen amongst cumuli clouds indicates north-westerly winds; the mountains around Porto Ferrajo covered with clouds indicate south-easterly winds, which will be violent when the water in the port rises and remains above its normal level.

- 10 **Tunny fisheries.**—Tunny nets extend about 100 yards south-westward, from near Punta Falconaja, and the same distance north-westward from near Punta Pina.

**The town** of Porto Ferrajo (ancient Portus Argoeus) (Lat. 42° 48' N., Long. 10° 20' E.) is situated on the southern side of  
15 the promontory, on which are Forti Falcone and Stella, and near its eastern end; the forts are connected by a low white curtain wall. The town is surrounded by walls, and there is a moat on its western side. There are a Government house, two churches, a town hall, and barracks.

- 20 The population was 9,435 in 1911.

**Trade.**—The principal import is coal, for making coke, 290,700 tons being imported in 1913. Vessels with coal are generally discharged at the rate of about 1,500 tons daily. Iron and iron ore are  
exported.

- 25 **Supplies.**—Provisions can be obtained, but the supply is limited without previous notice. There is no coal on sale, but possibly some might be obtained by H.M. Ships in a case of emergency.

Water is conveyed to the town by an aqueduct, and 150 tons daily can be supplied to shipping. A lighter, with a pump, takes water to  
30 vessels at the anchorages.

**Repairs.**—Small repairs to hull or machinery can be made good at the Besana works, near the west gate of the town; the Alti forni have also a workshop.

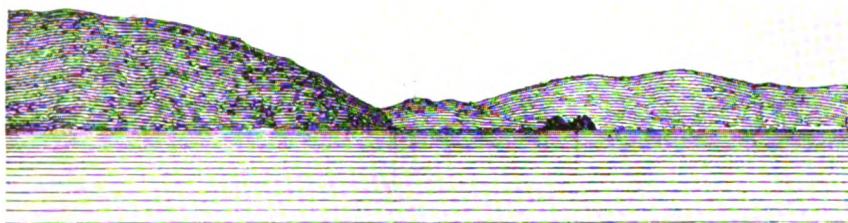
- Hospital.**—The civil hospital has 100 beds, and receives patients  
35 at a charge of 2½ lire daily.

**Communication.**—A steam vessel runs twice daily each way between Porto Ferrajo and Piombino, the passage taking about 75 minutes. A service of motor-cars covers practically all the island. There is telegraphic communication.

- 40 *Chart 158, C. Cavallo to Civita Vecchia.*

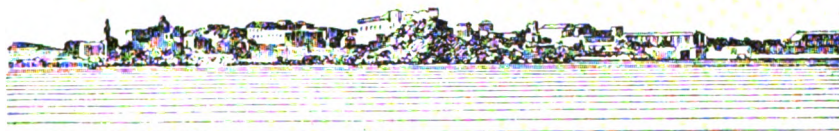
**The coast** from Punta Falconaja trends north-eastward 4 miles to Capo della Vita, and is high, rocky, and broken.

*General charts 158, 1780, 2158a, 449.*



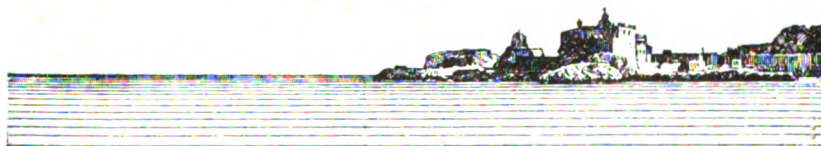
*Capo della Stelia.*      *Isolotto Corbella.*  
*Capoliveri village, 77° true.*  
*4½ miles.*

Isola d'Elba ; south coast.



*Port lighthouse.*      *Cantina.*  
*Lighthouse.*

Isola Pianosa ; Cala San Giovanni, from the anchorage.



*La Scola.*  
*Marzocco.*

Isola Pianosa ; east coast.



*Plan, Palmajola channel, on 1719. Var. 9° 0' W.*

Some rocky patches are situated nearly a cable off La Pietra rossa, red cliffs  $2\frac{3}{10}$  miles south-westward of Capo della Vita; the water is generally deep over a cable from the coast.

Monte Grosso, 1,139 feet high, is about  $1\frac{1}{4}$  miles south-westward of Capo della Vita. 5

**Signal station.**—There is a semaphore on the summit of Monte Grosso.

**Capo della Vita** is 305 feet high, and steep; a spit extends  $1\frac{1}{2}$  cables northward from it. 10

**Secco di Capo della Vita**, 7 cables northward from the cape, is small, and has a least depth of  $4\frac{1}{4}$  fathoms, rock bottom.

*Chart 158, C. Cavallo to Civita Vecchia.*

**South and east coasts.**—The coast from Punta di Fetovaja (page 305) trends eastward nearly 4 miles to Capo di Poro, and is 15  
cliffy, with a little cove about midway.

**Telegraph cable.**—The cable from Pianosa is landed in the cove just mentioned, and its direction is marked by the alignment of two beacons.

*Plan, Campo bay, on 1719.* 20

**Capo di Poro** (Lat.  $42^{\circ} 43' N.$ , Long.  $10^{\circ} 14' E.$ ), the eastern extreme of Monte di Poro, 515 feet high, is steep and rocky.

**Golfo di Campo** extends northward  $1\frac{1}{2}$  miles from its entrance between Capo di Poro and Punta di Mele,  $1\frac{1}{2}$  miles to the eastward, and there is a sandy beach at its head. Marina di Campo is on the west 25  
shore of the bay, northward of a rocky point, on which is the large circular tower of the same name. The water shoals gradually from about 23 fathoms in the entrance to 5 fathoms at 2 cables from the beach.

**Light.**—A light is exhibited, at 111 feet above high water, from 30  
Torre Marina di Campo.

**Anchorage.**—Except with south-easterly winds the bay affords anchorage in from 7 to 8 fathoms, sand and mud, off the tower. The anchorage is covered by the *red* sector of the light.

**Scoglio Triglia**, above water, lies  $2\frac{1}{2}$  cables southward of Punta di Mele, and a rock with  $1\frac{3}{4}$  fathoms water lies between the scoglio and the point, from which it is 150 yards distant. 35

**Capo Fonza**, about half a mile eastward of Punta di Mele, is mountainous and rugged; about  $1\frac{1}{2}$  cables to the south-westward is a rock with  $1\frac{3}{4}$  fathoms water. Capoliveri village open southward of 40  
Capo della Stella leads southward of it. View at page 310.

*General charts 158, 1780, 2158a, 449.*



*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

**Golfo dell' Acona** extends  $1\frac{1}{2}$  miles northward from its entrance between Capo Fonza and Capo della Stella,  $1\frac{3}{4}$  miles to the eastward; the shores on both sides of the bay are rocky, and there is  
5 a wide beach at the head, from the western end of which Punta dell' Aconella, low, blackish, and rocky, projects about a cable. The bay is seldom visited by vessels.

**Capo della Stella** (*Lat. 42° 44' N., Long. 10° 19' E.*) is the southern extreme of a wooded promontory nearly half a mile broad  
10 and 492 feet high, which projects about  $1\frac{1}{2}$  miles southward. Isolotto Corbella, one cable southward of the cape, is a bare blackish rock, with other rocks around.

**Golfo Stella** extends northward about 2 miles from its entrance between Capo della Stella and Punta Pidaceelli (Morcone), 2 miles to  
15 the eastward, and the depths in the bay decrease gradually from about 37 fathoms in the entrance to 5 fathoms about 2 cables from the shore. The slopes of the hills around the bay are thickly wooded.

Capo Pini projects about a quarter of a mile southward on the east side of a wide beach at the head of the gulf; it is rocky, and a rock  
20 with 6 feet water and 3 to 4 fathoms around lies a quarter of a mile westward of it.

The east shore of the bay is rocky, and there are many rocks close off it. A creek about one mile northward of Punta Pidaceelli has a rock with 3 feet water in the middle of the entrance.

25 Capoliveri village is on the slope of a hill, and 548 feet above high water, about half a mile eastward of the middle of the east shore of the bay.

Punta Pidaceelli is bordered by rocks, especially on its southern side, between which and Capo Francese, 4 cables south-eastward, is a  
30 cove. Cala dell' Innamorata, southward of Capo Francese, is small, but minerals are shipped here, there is a wooden pier, and an iron pier with a T head extends 492 feet west-north-westward. The cove is sheltered from the southward by Isolotti Gemini, and the banks around them.

35 **Light.**—A light is exhibited from the outer end of the iron pier.

**Isolotti Gemini** lie on a bank with depths of from 3 to 7 feet which extends about 3 cables south-eastward from the southern point of Cala dell' Innamorata; the outer islet is 138 feet high, and conical; the inner islet is 75 feet high.

40 **Scoglietti Corbelli**, half a mile westward of Isolotti Gemini, are a group of blackish rocks above water, with deep water around. There are depths of from 16 to 27 fathoms in the passage between the Gemini and Corbelli; in navigating it pass decidedly nearer the Corbelli

*General charts 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

than the Gemini, to avoid the bank, which projects more than a cable from the outer Gemino, but it is better to pass westward of the Corbelli.

**Capo Calamita**, one mile south-eastward of the southern point of Cala dell' Innamorata, is the south extreme of a high mountainous spur; it is formed of reddish rock, containing much iron ore. A little eastward of the cape is a mole where small craft load with ore. 5

**Local magnetic attraction.**—See Appendix IV.

**Punta dei Riparti**,  $1\frac{1}{4}$  miles east-south-eastward of Capo Calamita, is the south extreme of a headland, on the south-west side of which, and about a quarter of a mile off the coast, is Scoglio Rimaolo (Rimailo), above water, with depths of over 16 fathoms inside it. Punta dei Riparti is high, rocky, and close off it is a rock above water, with some drying rocks westward of it, but within half a cable from the coast. 10 15

**The coast** from Punta dei Riparti trends north-eastward one mile to Capo Fino, thence northward one mile to Capo Gardo, and then north-westward  $1\frac{3}{4}$  miles to Capo Focardo; it is clear at a short distance. Monte Calamita, 1,355 feet high, lies westward of Capo Gardo, and almost in the middle of the southern promontory of the island. 20

*Plan, Port Longone, on 1719.*

**Isolotto dei Topi (Liscoli)** lies close off the coast one mile north-westward of Capo Gardo; it is covered with bushes, but the lower part shows white strata. 25

**Capo Focardo**, on which are a fort and lighthouse, limits the cove lying north-westward of Isolotto dei Topi, in which the 5-fathom line is less than a cable off-shore.

**GOLFO di PORTO LONGONE** extends about one mile westward from its entrance between Capo Focardo (*Lat. 42° 45' N., Long. 10° 25' E.*) and Punta San Vincenzo, 6 cables to the northward, the width decreasing to about  $2\frac{1}{2}$  cables near the head; there are depths of from 15 to 22 fathoms in the entrance, and 5 fathoms and less within 4 cables from the head; the bottom is chiefly mud, sand, and weed. 30 35

The hills slope steeply on all sides, and the west and south sides are well covered with wood.

**Punta San Vincenzo**, the north entrance point of the bay, is the south-eastern extreme of a promontory, which is surmounted by a large citadel; the citadel contains some conspicuous buildings, and a church with a campanile. 40

*General charts 158, 1780, 2158a, 449.*

*Plan, Port Longone, on 1719. Var. 9° 0' W.*

**Porto Longone** is a cove on the north side of the bay, about 1½ cables in extent; a pier about 264 feet long extends from the east shore, enclosing depths of from 3 to 1½ fathoms. A short mole  
5 extends from the Port office, about 100 yards northward of the pier, and within the mole is a wharf for coasting vessels.

**LIGHTS.**—A light is exhibited,  
10 at 105 feet above high water, from an octagonal tower, with an iron parapet, on the fort at **Capo Focardo** (*Lat. 42° 45' N., Long. 10° 25' E.*).

A light is exhibited, at 46 feet  
15 above high water, from a small rectangular building on **Punta San Giovanni** (the west point of the port).

A light is exhibited from the Port office mole.

20 A light is exhibited from a post at the end of a mole constructing.

**Buoys.**—There is a yellow cylindrical iron mooring buoy in the entrance to the port, and there are  
25 some private mooring buoys in the port.

**Anchorage.**—There is anchorage a little outside the pier, in 6 and 7 fathoms, whence coasting vessels can go further into the port should the wind freshen from the eastward; large vessels anchor in the bay with **Punta San Giovanni lighthouse**  
30 bearing 314° true, and **Punta San Vincenzo** 68° true, in 8 fathoms. Small craft obtain shelter from south-easterly winds about 100 yards off the south shore, with **Punta San Giovanni lighthouse** bearing about 22° true, in 4 fathoms water.

**The town** is on the north shore of the port; in it there is a  
35 square clock turret. The principal industries are mining, sardine and anchovy fishing, and the production of wine.

**Supplies** are plentiful. Water can be obtained from the Port office mole.

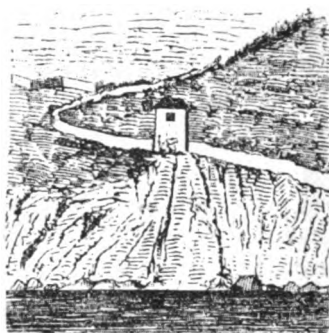
**Communication.**—There is a motor-car, by a good road, to  
40 Porto Ferrajo twice daily, which connects with the steamers to and from Piombino. There is telegraphic communication.

**Capo Bianco** is 4 cables north-eastward of **Punta San Vincenzo**, **Cala Barbarossa**, a small cove, lying between. **Capo Bianco** is marked

*General charts 158, 1780, 2158a, 449.*



Capo Focardo lighthouse.



Punta San Giovanni lighthouse.

*Plan, Port Longone, on 1719. Var. 9° 0' W.*

by white spots and one red spot, near which is a wooden pier for shipping mineral ore. Punta Royal, 3 cables north-eastward of Capo Bianco, is marked by a watch-house; a bank with 4 feet water extends about a cable southward from the point. 5

*Chart 158, Cape Cavallo to Civita Vecchia.*

**Capo d'Arco** (*Lat. 42° 46' N., Long. 10° 26' E.*) about a mile north-eastward of Capo Bianco, is rocky, and from it the coast trends northward  $1\frac{3}{4}$  miles to Capo Ortano; about a mile northward of Capo d'Arco is a sandy bay, off the south side of which is Isolotto d'Ortano, 78 feet 10 high, and connected to the shore by a rocky ridge.

The largest stream in the island, which rises near the mountain village of Rio, flows down a valley between high wooded hills into the bay.

**Rio Marina**, nearly a mile northward of Capo Ortano, is the 15 shipping place for the iron ore from the mines, situated chiefly in a deep gorge of the mountains to the westward. Vigneria, Portello, and Rio Albano are shipping places northward of Rio Marina.

**Scoglietto di Rio Marina**, locally called Isolotto, lies off the southern extreme of Rio Marina. There are bollards on the north- 20 west side of the rock for small vessels' stern lines.

**Jetties.**—Ponte dei Voltoni extends eastward from the shore to Scoglietto di Rio Marina, the outer 120 yards being under construction, but almost completed. Northward of this jetty is a wood and iron jetty with about 10 feet water at its head. About 2 cables northward 25 of Ponte dei Voltoni, a groyne about 110 yards long is being constructed.

There are two jetties at Vigneria immediately northward of Rio Marina, with 15 feet water at the head of the southern one, and 17 feet at the head of the other. 30

There is an iron jetty about 200 yards long at Portello, 3 cables northward of Vigneria.

There is an iron jetty, 190 yards long, with 36 feet water at its head, at the mouth of Rio Albano, about 8 cables northward of Portello; there are also two small jetties a little southward of it. 35

**Lights.**—A light is exhibited, at 39 feet above high water, from a post on the summit of Scoglietto di Rio Marina.

A light is exhibited from the head of the little jetty, and also from the end of the groyne constructing, at Rio Marina.

A light is exhibited from the end of the long jetty at Vigneria. 40

Lights are exhibited from the head of the jetty at Portello.

Lights are exhibited from the head of the jetty at Rio Albano.

*General charts 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

**Anchorage** can be obtained, in 11 fathoms water, about 2 cables eastward of the head of Vigneria jetty.

**Water** can be obtained from the north side of Ponte dei Voltoni.

5 *Plan, Palmajola channel, on 1719.*

**Capo Pero.**—The coast from Rio Albano to Capo Pero,  $1\frac{1}{4}$  miles northward, is bold, with deep water near it.

**Bank.**—A rocky bank, with 7 fathoms water, lies half a mile eastward of Capo Pero.

10 **Jetties.**—Two short jetties extend off the coast immediately north-westward of the cape; the iron jetty has 11 feet water at its head, and the wooden one 10 feet.

**Light.**—A light is exhibited, at 36 feet above high water, from a metal turret on a masonry hut eastward of the root of the iron jetty.

15 **Telegraph cable.**—A cable from Piombino is landed about half a mile north-westward of Capo Pero.

**The coast** from Capo Pero trends north-westward 2 miles to Capo della Vita, the north extreme of the island. Il Cavo village is on the beach of the cove situated between Capo Pero and Punta Castelluccio, 6 cables north-westward. A sandy beach, on which are some cottages and the chapel of San Mennato, lies between Punta Castelluccio and Capo Castello, nearly a mile north-westward.

**Anchorage.**—There is open anchorage in 8 fathoms, mud, with Monte Grosso semaphore  $241^{\circ}$  true, and Capo Castello in line with the west point of Isolotto dei Topi.

**Capo Castello** projects about  $1\frac{1}{2}$  cables north-eastward from the coastline; it is steep, and there are some buildings on it.

**Isolotto dei Topi**,  $1\frac{1}{2}$  cables northward of Capo Castello, is 111 feet high; there are depths of from 8 to 10 fathoms close eastward and northward of the islet, and of  $3\frac{1}{4}$  fathoms in the channel between it and the cape. A rock, on which a vessel of 14 feet draught touched, was reported in the channel in 1914. A few rocks, but close in, lie westward of Capo Castello, whence a sandy beach curves northward to Capo della Vita (page 311).

35 **Isolotto Palmajola** (*Lat.  $42^{\circ} 52'$  N., Long.  $10^{\circ} 29'$  E.*),  $1\frac{1}{2}$  miles north-eastward of Capo Pero, is about a quarter of a mile in extent, conical, and 300 feet high. A rock above water lies close northward of the north-east point of the island, and about 2 cables further north-eastward is a detached rock with  $2\frac{1}{2}$  fathoms water; the other

*General charts 158, 1780, 2158a, 449.*

*Plan, Palmajola channel, on 1719. Var. 9° 0' W.*

coasts are bold, and there are depths of from 9 to 22 fathoms in the channel between the islet and Elba.

**LIGHT.**—A light is exhibited, at 345 feet above high water, from a square tower which surmounts a white rectangular building, 46 feet high, on the summit of Isolotto Palmajola.



Isolotto Palmajola lighthouse.

*Chart 158, Cavallo to Civita Vecchia.*

**Isolotto Cerboli**,  $3\frac{1}{4}$  miles eastward of Palmajola, is about a quarter of a mile in extent, and 243 feet high. On the summit is a tower; it is uninhabited. The islet is steep-to, except the north-west coast, which should be given a berth of a quarter of a mile.

*Plan, Pianosa island, on 1719.*

**ISOLA PIANOSA** (ancient Planacia), about 7 miles south-south-westward from the south-western extreme of Elba, is 3 miles long north and south, and  $2\frac{1}{2}$  miles broad, but for about three-quarters of a mile from its north point it is from  $1\frac{1}{2}$  to 4 cables broad. The island is very flat except at the south-east end, where it is 95 feet high. There is a penal agricultural settlement here.

**Punta del Marchese** (Lat.  $42^{\circ} 37' N.$ , Long.  $10^{\circ} 5' E.$ ), the north point of the island, rises to a little hill, on which is an isolated building. Lo Scoglio Scarpa, blackish, and above water, is about  $1\frac{1}{2}$  cables northward of the point. There are also several rocky patches, with from 5 feet to  $2\frac{1}{4}$  fathoms water, within half a mile of the north part of the island, which should not be approached to less than one mile.

**Punta del Grottone** is the east extreme of the north promontory of the island, and from it the rocky coast trends southward about  $1\frac{1}{2}$  miles to Cala San Giovanni.

The Belvedere, a little inland, north-westward of the Cala, is a conspicuous circular building with two rows of arches, and surmounted by a staff.

**Beacon.**—A masonry obelisk, on a square base, 46 feet high, and painted black and white in horizontal stripes, stands on the coast about 240 yards eastward of the Belvedere.

**Cala San Giovanni**, a sandy bay, lies between the beacon just mentioned and the rocky point about 4 cables south-eastward, on which are infantry barracks, a church, houses, and some ancient ruins. La Cantina, a low, long, red building, is on the south shore of the bay. The port, westward of the point, and protected from the northward by a small mole, has depths of 5 feet in the middle, and is suitable for small craft. View at page 310.

*General charts 158, 1131, 1780, 2158a, 449.*

*Plan, Pianosa island, on 1719. Var. 9° 0' W.*

**Secca di San Giovanni.**—Il Marzocco, a rock shaped like a steeple, view at page 310, lies eastward of the port, and rocks, some of which are awash and others have 6 feet water, extend about 2 cables north-eastward from it and the point close-to.

**Clearing mark.**—The beacon on the shore north-westward of Cala San Giovanni in line with the Belvedere, 267° true, leads northward of Secca di San Giovanni.

**LIGHTS.**—A light is exhibited, at 140 feet above high water, from a tower on a white house (*Lat. 42° 35' N., Long. 10° 6' E.*), situated on the island about 4 cables westward of Isolotto la Scola.

A light is exhibited, at 72 feet above high water, from a masonry pillar on a rectangular watch-house, 5 feet high, on the shore westward of the port.



Isola Pianosa lighthouse.

**Anchorage** can be obtained in about 9 fathoms, sand, northward of the entrance to the port, with Belvedere house bearing 250° true. Small vessels, especially during a scirocco, can anchor, in about 4 fathoms, northward of La Cantina, with Belvedere house bearing 295° true.

**Telegraph cable.**—The cable from Elba is landed in Cala San Giovanni, close to the lighthouse, and the alignment of two beacons, 216° true, marks its direction.

**Supplies.**—A limited quantity of provisions might be procured. Water can be obtained from a cistern near La Cantina.

**Communication.**—Steam vessels between Leghorn, Porto Ferrajo, Porto Santo Stefano, and Civita Vecchia, and between Leghorn, Porto Ferrajo, and Pianosa, call weekly. There is telegraphic communication.

**Isolotto la Scola**, about 3 cables south-eastward from the east point of Cala San Giovanni, is small, 111 feet high, and flat on top; it should not be approached to less than one cable.

About 2 cables south-south-eastward of La Scola is a rock with 1½ fathoms water.

**Punta Secca**, half a mile southward of La Scola, is a pointed projection, and a spit, on which the sea breaks, extends a cable eastward from it.

**The coast** between Punta Secca and Punta Brigantina, 8 cables south-westward, is bordered by rocks, and should not be approached to less than one cable.

*General charts 158, 1131, 1780, 2158a, 449.*

*Plan, Pianosa island, on 1719. Var. 9° 0' W.*

**Punta Brigantina**, the south point of the island, is 92 feet high, and steep; it is surmounted by a yellow house; a spit extends a cable southward of it.

**Torre San Marco**, on the edge of the steep coast of the south-west part of the island, and  $1\frac{3}{4}$  miles nearly westward of Punta Brigantina, is square and isolated. 5

**Anchorage** can be obtained during northerly winds, in 10 fathoms water, with Torre San Marco  $305^\circ$  true, and the house on Punta Brigantina  $83^\circ$  true. 10

**The coast** from a little westward of Torre San Marco turns northward about 7 cables to Punta Libeccio, and is bold, but bordered by a bank, which extends, with from 2 to  $4\frac{1}{2}$  fathoms water, about 4 cables westward. Punta Pulpito, half a mile north-eastward of Punta Libeccio, is steep and rocky; it is surmounted by a pillar, 79 feet above high water. 15

**Golfo della Botte** lies between Punta Pulpito and Punta del Marchese, 2 miles north-north-eastward; its shores are flat and steep. Anchorage can be obtained, during the scirocco, about 4 cables eastward of Punta Pulpito, in about 5 fathoms water, sand and weeds bottom. 20

*Chart 158, C. Cavallo to Civita Vecchia.*

**Formiche di Monte Cristo**.—Scoglio Africa (*Lat.*  $42^\circ 21' N.$ , *Long.*  $10^\circ 4' E.$ ),  $12\frac{1}{2}$  miles southward of Pianosa, is small in extent and 6 feet high; spits extend about a quarter of a mile northward, and half a mile southward from the rock, which should not be approached nearer than a mile. Secca Africa, a patch with  $2\frac{1}{2}$  fathoms water, lies  $2\frac{1}{2}$  miles north-north-eastward from the rock, and half a mile further north-north-eastward is a patch with  $3\frac{1}{4}$  fathoms water. Formiche di Monte Cristo are situated on a bank with from 9 to 18 fathoms water, which extends about  $2\frac{1}{4}$  miles south-eastward from a line joining the rock and shoal. The current usually sets eastward in the vicinity, and must be guarded against by vessels westward of the bank. 25 30

**LIGHT**.—A light is exhibited, at 56 feet above high water, from a hexagonal iron house on a pyramidal framework of iron piles, 52 feet high, and painted white, on Scoglio Africa. 35

**MONTE CRISTO (CRISTO)** (ancient Oglasa), 10 miles eastward of Scoglio Africa, is about  $2\frac{1}{2}$  miles long north and south, and nearly 2 miles broad; Pico della Fortezza, its summit, is 2,093 feet high. The coasts are bold, and the water around is deep, there being 60 fathoms at the distance of half a mile. On it are the ruins of the ancient church and Grotta di Santo Mamiliano. A royal palace is situated near the shore of Cala Maestra, on the west coast, where are 40

*General charts 158, 1131, 1780, 676, 2158a, 449.*



*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

also the only houses in the island, which are occupied by the caretakers. Landing can be effected at **Cala Maestra** inside a short mole.

**Buoys.**—There are two mooring buoys in **Cala Maestra**, one  
5 cylindrical and the other conical, both painted white.

**Telegraph cable.**—A cable is laid from **Cala Maestra**  
(*Lat. 42° 20' N., Long. 10° 17' E.*) to **Pianosa**, and anchorage is pro-  
hibited in its vicinity. The cable from its landing place, about  
220 yards eastward of **Punta di Cala Maestra**, passes westward of the  
10 outer buoy, and trends north-north-westward until abreast the sum-  
mit of **Punta Portale**, thence direct.

*Plan, Giglio island, on 1719.*

**ISOLA del GIGLIO** (ancient **Igilium**), nearly 8 miles west-  
ward of the promontory of **Argentario**, is  $4\frac{3}{4}$  miles long north and  
15 south, with a greatest breadth of  $2\frac{1}{2}$  miles, rugged, and **Poggio della**  
**Pagana**, its summit, on which is a small beacon, is 1,634 feet high.  
**Giglio Castello**, about a mile northward of **Poggio della Pagana**, is  
1,335 feet above high water, large, and surmounted by a semaphore.  
An old lighthouse, on a hill, 945 feet high, about half a mile north-  
20 north-westward of the castle, is conspicuous. The island is of granitic  
formation, and therefore but little cultivated; it has caves of granite  
and alum; the coasts are high, and generally clear.

**Signal station.**—There is a semaphore on **Giglio Castello**.

**West coast.**—**Punta del Fenaio** (**Fienai**o), the north-west point  
25 of the island, has a lighthouse on it. A small rocky patch, with  
 $5\frac{1}{2}$  fathoms water, surrounded by depths of about 16 fathoms, lies  
rather more than half a cable north-westward of the lighthouse.

**LIGHT.**—A light is exhibited, at 129 feet  
above high water, from an octagonal tower,  
30 33 feet high, with a house attached, all painted  
white, on **Punta del Fenaio**.

**Punta le Secche** is 3 cables southward  
of **Punta del Fenaio**, and **Le Secce** (**Secche**),  
with 5 feet water, lies about a cable north-west-  
35 ward of it.



**Punta del Fenaio**  
lighthouse.

**Golfo del Campese** extends half a mile south-eastward from  
its entrance between **Punta la Secche** and **Punta Faraglione**, 8 cables  
south-south-westward. Its shores are high and rocky, and the south-  
eastern shore is a yellow beach, which is divided into two parts by  
40 a small rocky projection, 56 feet high, on which is **Torre del Campese**,  
20 feet high, large and conspicuous.

*General charts 158, 1780, 676, 2158a, 449.*

*Plan, Giglio island, on 1719. Var. 8° 50' W.*

Pignocchi, a rocky patch with one fathom water, lies about 3 cables northward of the tower and a cable off-shore.

**Punta Faraglione** (*Lat. 42° 22' N., Long. 10° 52' E.*) is the north extreme of a narrow rocky peninsula which projects about 5 1½ cables northward, and is fronted by some high monolithic rocks.

The coast from Punta Faraglione trends southward nearly a mile to Punta Saline, and is high, bare, and rocky; it is bordered by rocks, above and under water, to the distance of about one cable.

**Punta Saline**, the south-western extreme of a projection, is low and rocky. 10

The coast from Punta Saline trends south-eastward 3¼ miles, to Punta di Capel Rosso, the south point of the island, and is bold and cliffy. La Cappa, close to the coast east-south-eastward of Punta Saline, is a light yellow-coloured rock, and does not show well against the coast, which is of the same colour. 15

**LIGHT.**—A light is exhibited, at 295 feet above high water, from a white octagonal tower, 65 feet high, near Punta di Capel Rosso.

**East coast.**—The coast from Punta di Capel Rosso, which is steep on all sides, trends north-eastward nearly 1½ miles to Punta Torricella.

Capo Marino, 6 cables northward of Punta Torricella, is the eastern extreme of a wide projection, on the north coast of which a spit with 5 feet water projects half a cable northward.

Cala Cannelle (Cannelle) lies between Capo Marino and Punta Castellari, 4 cables northward; small vessels anchor in 6 fathoms about half a cable off the head of the cove, which must be approached with caution. 30

**Punta Castellari** has an old guardhouse on it; Le Scuola (Scole), some rocks above water, lies close off the point.

**Porto Giglio** is a small cove about 4 cables north-westward of Punta Castellari. A short mole from the south shore protects the beach, round which are a few houses, and within it are depths of from 11 to 7 feet. The town is on the high land, near the castle, the inhabitants are chiefly engaged in agricultural pursuits and in fishing for pilchards; there are quarries of marble and iron mines; small quantities of wine, timber, and fish are exported. 40



Capel Rosso lighthouse.

*General charts 158, 1780, 676, 2158a, 449.*

*Plan, Giglio island, on 1719. Var. 8° 50' W.*

**Light.**—A light is exhibited, at 24 feet above high water, from a masonry pillar, with a little iron framework, on a white building at the molehead.

- 5 **Telegraph cable.**—The cable from Promontorio Argentario is landed near the mole in Porto Giglio; the alignment of two beacons indicates the direction.

**Communication.**—A steamer from Porto Santo Stefano calls daily, except Sundays, at Porto Giglio, remaining under way. There  
10 is telegraphic communication.

**Punta del Lazzaretto** (*Lat. 42° 22' N., Long. 10° 55' E.*) is about half a mile northward of Porto Giglio, and there is a tower on a hill about  $1\frac{1}{2}$  cables south-westward of it.

**The coast** from Punta del Lazzaretto trends north-westward  
15  $1\frac{2}{10}$  miles to Punta della Croce, whence it continues three-quarters of a mile in the same direction to Punta del Morto, and then turns westward 4 cables to Punta del Fenaio. Punta della Croce terminates in a smooth grey rock, in which there appear to be two deep incisions forming a cross.

- 20 **Secca della Croce**,  $2\frac{1}{2}$  cables northward of Punta della Croce, has  $2\frac{1}{2}$  fathoms water, and from 13 to 58 fathoms close around.

**Current.**—A current, sometimes strong, sets northward on the east coast of Isola del Giglio, and is especially felt in fine weather, and a current has been experienced on Secca della Croce, setting north-  
25 westward at the rate of half a knot, against a moderate wind.

*Chart 158, C. Cavallo to Civita Vecchia.*

**Soundings.**—The 100-fathom line trends north and south from 2 to  $3\frac{1}{2}$  miles westward of Isola del Giglio; in the channel between  
30 the island and Promontorio Argentario there are depths of from 36 to 83 fathoms, and between the island and Isola Giannutri from 68 to 80 fathoms, mud bottom.

*Plan, Giannutri isle, on 1719.*

**ISOLA GIANNUTRI** (Dianium of the Greeks, Artemisia of the Romans),  $8\frac{1}{2}$  miles east-south-eastward from Capel Rosso, the  
35 south extreme of Giglio, is an irregular crescent in form, with the convex side to the westward,  $1\frac{1}{2}$  miles long north and south, and from one-quarter to three-quarters of a mile broad. The summit of the island, near the south end, is 305 feet high, and elsewhere the hills are from 272 to 141 feet in height. The coasts are rocky and steep-to, the  
40 only exception being a spit with 2 fathoms water, which projects half a cable northward from Punta Secca, the north point of the island. There is no water on the island, except what is obtained from reservoirs for rain.

*General charts 158, 1780, 676, 2158a, 449.*

*Plan, Giannutri isle, on 1719. Var. 8° 50' W.*

Cala Maestra (Lat. 42° 15' N., Long. 11° 6' E.), on the north-west side of the island, can only be used by small craft in fine weather; there is no anchorage off it, as the depths increase rapidly. There are some ruins of Roman buildings near the cove, and a square grey house on Punta Scaletta, its north point. It is the only locality in the island, except the lighthouse, which is inhabited, and here there are a few fishermen. 5

Golfo degli Spalmatoi, on the east side, extends half a mile north-westward from its entrance between Punta del Calettino and Punta di San Francesco, half a mile north-eastward, and its shores are generally bare and rocky; the depths decrease from 30 fathoms in the entrance to about 10 fathoms near the shores; although affording shelter from all but south-east winds, the holding ground is bad. 10

**LIGHT.**—A light is exhibited, at 200 feet above high water, from a white octagonal tower, 30 feet high, with white dwelling attached, on a hill about a cable north-westward of Punta Rossa, the southern point of the island. 15

**Communication.**—A boat is sent to Giannutri from Porto Ercole every 15 days. 20



Giannutri lighthouse.

*General charts 158, 1780, 676, 2158a, 449.*

## CHAPTER V.

SOUTH-WEST COAST OF ITALY.—PIOMBINO TO PUNTA DELLA CAMPANELLA.—ISOLA DI CAPRI.

*Lat. 42° 57' N. to Lat. 40° 32' N., Long. 10° 32' E. to Long. 14° 20' E.*

**VARIATION IN 1917.**—Decreasing about seven minutes annually.

*Chart 158, C. Cavallo to Civita Vecchia. Var. 9° 0' W.*

**GOLFO DI FOLLONICA** extends 6 miles north-eastward from its entrance between the south-east extreme of Promontorio del Piombino and Punta Troja, 11 miles south-eastward. The northern  
5 shore is low, swampy, and infested with malaria from July to November; towards the head of the bay is a fine forest backed by elevated ground; the eastern shore is bold.

*Plan, Porto Vecchio di Piombino, on chart 158.*

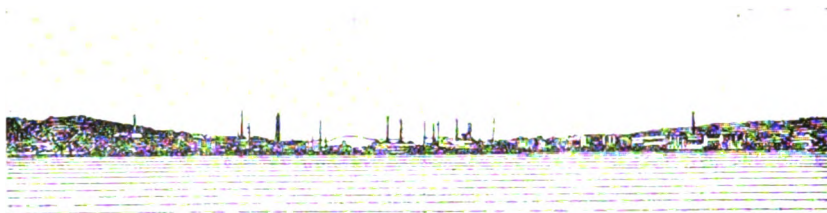
**Porto Vecchio di Piombino.**—The shore from Punta della  
10 Batteria (*Lat. 42° 56' N., Long. 10° 33' E.*) (page 302) trends northward, with a curve to the westward, 8 cables to Foce della Cornia, and is low and sandy. A bank, with 3 fathoms and less water, extends from a half to 3 cables off-shore. Porto Vecchio is on the west shore of the bay, and about half a mile north-eastward of Piombino; the  
15 chimneys of its iron works are conspicuous. View at this page.

**Jetties.**—Pontile della Magona, close westward of Punta della Batteria, has a depth of 8 feet at its head and 13 feet close outside. Close north-westward of this jetty is a similar one. Pontile della Ferriere, 2 cables from Punta della Batteria, has a depth of 10 feet  
20 at its head. Pontile degli Alti Forni, the northern jetty, is about 370 yards long, with a short arm extending northward from about the middle; there is a depth of 11 feet at the head of this jetty, on which is a railway, and near its root are some landing steps.

**LIGHTS.**—A light is exhibited, at 65 feet above high water,  
25 from an iron post surmounting a square battlemented turret, 12 feet high, on Punta della Batteria.

A light is exhibited, at 31 feet above high water, from the head of Pontile della Ferriere, and a light is exhibited from the same jetty, about 50 feet to the westward, when steam vessels are loading.

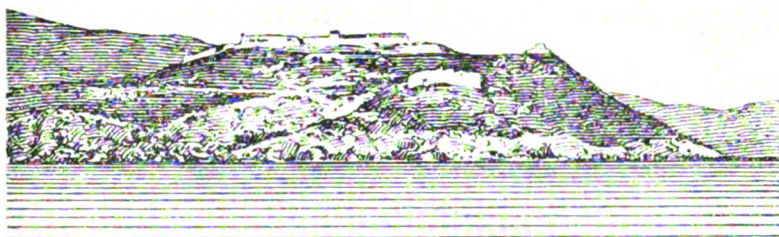
*General charts 158, 1780, 2158a, 449.*



*Magona.*

*Alti Forni.*

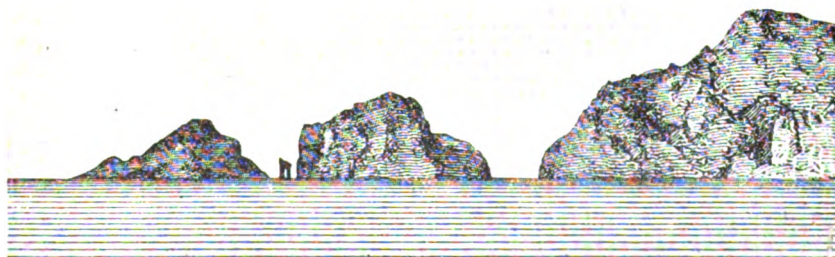
Porto Vecchio di Piombino, from the anchorage.



*Forte Monte San Filippo.*

*Molinaccio.*

Porto Ercole.



*Scoglio di Pidocchio.*

*Scoglio di Mezzogiorno.*

*Scoglio Fucile.*

*Punta di Mezzogiorno.*

*Scoglio del Cappello.*

Palmarola.—Ponza islands.



*Plan, Porto Vecchio di Piombino, on chart 158. Var. 9° W.*

Lights are exhibited from a pyramidal iron trellis support with a masonry base, 43 feet high, on the head of the north arm of Pontile degli Alti Forni.

Three large electric lights are occasionally shown from above the Alti Forni, to the northward of the town. 5

**Post.**—A large post, 7 feet high, is placed in 3 feet water, near the edge of the shore bank, a cable north-eastward of the head of Pontile della Ferriere.

**Anchorage** can be obtained nearly half a mile north-eastward of Punta della Batteria, with the lighthouse on that point bearing 230° true, and the turret on the mole at Foce della Cornia 327° true, in 6 fathoms water, mud bottom. 10

Strong winds from south-east to south-west cause a very heavy sea at the anchorage, when the work of loading or unloading large steam vessels cannot be carried on. 15

A small patch with 3 fathoms water lies half a cable within the 5-fathom contour, about 3 cables northward of the anchorage.

**Supplies.**—Meat can be obtained; in a large building between Alti Forni and Ferriere there is a co-operative store, where all kinds of provisions can be procured. 20

**Communication.**—There is a railway from Piombino and Porto Vecchio to Campiglia, where it joins the line from Genoa to Rome; the station is near the root of Pontile degli Alti Forni. There is telegraphic communication. 25

**Foce della Cornia.**—The streams from the high land of Piombino and the drainage from the marshy country around enter the sea through Canale and Fiume della Cornia. Foce della Cornia is marked by moles; on the extreme of the southern mole is La Torretta, a little reddish fort, and near that of the eastern mole is an isolated house, while a little further eastward is a pine wood. 30

*Chart 158, C. Cavallo to Civita Vecchia.*

**The shore** of the bay from Foce della Cornia (*Lat. 42° 57' N., Long. 10° 33' E.*) trends eastward 6 miles, and then curves south-eastward 6 miles, to Punta Martin; it is bordered by shoal water, the 5-fathom line being generally nearly a mile off-shore. Torre del Sale, on the beach, 2½ miles eastward of Foce della Canale, is low, whitish, and isolated; Torre Mozza, 4 miles further eastward, is also on the beach. Rocky patches, with from 2 to 6 feet water, extend to about 7 cables off the shore between Torre Mozza and Follonica, nearly 3½ miles south-eastward. 35 40

**Follonica village**, which is on low ground, and seen between trees, has a church with a little campanile, iron smelting works, a

*General charts 158, 1780, 2158a, 449.*



*Chart 158, C. Cavallo to Civita Vecchia. Var. 8° 50' W.*

railway station, and a pier about 100 yards long, with 5 feet water at its head.

**Light.**—A light is exhibited, at 16 feet above high water, from  
5 an iron standard on the pier.

**Anchorage.**—Anchor in  $6\frac{1}{2}$  fathoms, mud and weeds, good holding ground, with the head of the pier bearing  $25^\circ$  true, and Torre Mozza  $321^\circ$  true. Small vessels anchor in 3 fathoms about a quarter of a mile from the pier. The anchorage off Follonica is open to south-  
10 westerly winds, which, when strong, and especially in winter, make the anchorage untenable.

**Communication.**—Follonica is on the railway between Genoa and Rome. There is telegraphic communication.

**Supplies.**—Provisions can be obtained, but water is bad.

**The shore** from Follonica trends south-eastward, and is a low  
15 beach with a wooded swamp inside it for  $2\frac{1}{2}$  miles, when it rises and turns southward about  $1\frac{3}{4}$  miles to Punta Martin (Martina), near which is a hill 725 feet high.

The shore from Punta Martin trends southward, and is rocky, with  
20 some small projecting points, for about one mile, to the mouth of Fiume Alma, where, on the cliffs, is Torre Civette, 177 feet high, but not noticeable; there are three houses near it. From Torre Civette to Punta Barbieri,  $3\frac{1}{2}$  miles to the southward, the shore is a sandy beach rising within to hills covered with trees.

**Punta Barbieri** (Barbiere) is rocky, and surmounted by a square  
25 tower, 138 feet high; eastward of the point the water is shallow, and there are two rocks, each with about  $1\frac{1}{4}$  fathoms water, within a cable northward of it.

**Punta Troja (Troia)** (*Lat.  $43^\circ 48'$  N., Long.  $10^\circ 44'$  E.*),  
30 nearly three-quarters of a mile south-westward of Punta Barbieri, is surmounted by a conspicuous fort, a square building with a tower, 220 feet high; the point is elevated, but the land between it and the slopes of Monte Ballone, about one mile to the eastward, is low, marshy, and wooded. Monte Ballone, 2,066 feet high, lies 7 miles east-north-  
35 eastward from the point.

I. Porcellini are a line of rocks which extends about half a mile westward from Punta Troja; three of these rocks are well above water.

A strong current sets south-eastward towards I. Porcellini during fresh north-westerly winds, especially in summer.

**Isolotto Troja**, three-quarters of a mile west-south-westward of  
40 Punta Barbieri, is surmounted by a partly ruined circular tower, 125 feet high; the coasts are rocky and steep except on the east side, where a spit extends half a cable eastward, and in the middle of the channel between it and I. Porcellini, which is about 3 cables wide, is a

*General charts 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 8° 50' W.*

depth of 11 fathoms. This channel should not be attempted by strangers.

**The coast** from Punta Troja trends south-eastward 3 miles to Forte Rocchetta; Torre Galera, about  $2\frac{1}{2}$  miles from the point, is 420 feet above high water, circular, and surrounded by ruins; Forte Rocchetta is a yellowish building with an old square tower, 105 feet above high water, erected on a rocky spur. A sandy beach commences eastward of the fort, and curves southward to the mouth of Fiume Ombrone, distant 13 miles.

**Castiglione della Pescaja (Pescaia)** (*Lat. 42° 46' N., Long. 10° 53' E.*), 4 miles eastward of Forte Rocchetta, extends along the left bank of a canal which receives Torrente Bruna; the town is partly on a steep hill surmounted by an old cathedral.

The canal is entered between two short moles; it has a general depth of about 6 feet, but about 700 yards within it is crossed and closed by a bridge with three arches; the depths in the canal vary considerably, and boats of over 5 feet draught should only enter with a smooth sea.

**Lights.**—A light is exhibited, at 13 feet above high water, from a turret, 20 feet high, near the root of the western mole.

A light is exhibited, at 24 feet above high water, from an iron framework on a hut, 26 feet high, with a cylindrical iron dwelling in front, all painted green, on the head of the eastern mole.

**The coast** from Castiglione to Fiume Ombrone is low and wooded, fronting low marshy land; the 5-fathom line is about half a mile off Castiglione, and a mile off-shore near Fiume Ombrone.

Torre Marze,  $1\frac{3}{4}$  miles south-eastward of Castiglione, is partly built in the sea. Torre San Rocco, 4 miles further south-eastward and on the beach, is reddish, cylindrical, with a whitish roof, and isolated.

**Fiume Ombrone** flows south-westward into the sea through a low projecting wooded point, on both sides of which are small lakes, and is navigable by boats. Shoal water extends half a mile seaward of the mouth, and it should be approached with caution. A road leads to the walled town of Grosseto,  $8\frac{1}{2}$  miles north-eastward, where there is a railway station. On the right bank of the river, and  $2\frac{1}{2}$  miles inland, is Forte della Trappola.

**The coast** continues a sandy beach 3 miles eastward from the mouth of the Ombrone, where Torre Collelungo, 148 feet high, stands on a rocky tongue projecting across the beach; a little further eastward the coast turns southward and becomes rocky and hilly.

Torri dell' Uccellina, 1,017 feet above high water, are two towers attached to an old convent on the hill about  $1\frac{1}{4}$  miles eastward of Torre Collelungo.

Cala Forno,  $1\frac{1}{2}$  miles from Torre Collelungo, extends about a cable south-eastward, and is sheltered from the southward by a rocky pro-

*General charts 1780, 2158a, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 8° 50' W.*

montory, on which is a square tower, 400 feet above high water; there are 5 fathoms in the entrance to the cove, which gradually shoals to a sandy beach at the head. The cove, which is frequented by small sailing craft to load charcoal, must be left with south-west to north-west winds. The coast from Cala Forno trends south-eastward  $4\frac{1}{2}$  miles to the west point of Baia di Talamone, and is rocky; a small rock lies a short distance south-west of Cala Forno promontory, whence rocky banks extend a short distance off the coast, nearly to Torre Canelle.

Torre Canelle (Cannelle), 213 feet above high water, on a point 2 miles southward of Cala Forno, is white and square, and there is deep water close to the point. On Capo d'Uomo, about 2 miles farther southward, is a conspicuous round tower, whence the coast is rocky and tolerably bold to the western point of Baia di Talamone.

*Plan, Formiche di Grosseto, on 1719.*

**Formiche di Grosseto** are three islets or rocks lying about 7 miles south-westward of the mouth of Fiume Ombrone, and extend 2 miles north-west and south-east.

**Formica Maggiore**, or North rock (*Lat. 42° 35' N., Long. 10° 53' E.*), is a quarter of a mile long north-west and south-east,  $1\frac{1}{2}$  cables broad, 32 feet high, whitish in colour, and surmounted by the lighthouse; two rocks lie close off its north end, and a bank with from  $1\frac{1}{2}$  to  $4\frac{1}{2}$  fathoms projects  $1\frac{1}{2}$  cables southward from the islet. A rocky patch, with  $1\frac{3}{4}$  fathoms water, lies nearly half a mile north-westward of the islet.

Middle rock, three-quarters of a mile south-eastward from North rock, is about a cable long north and south, and narrow; there is a rock above water on the east side. A bank extends a few yards off its south end, and the 5-fathom contour is about a cable off the north end; between it and North rock there are depths of from 21 to 45 fathoms, and between Middle and South rocks, 29 to 57 fathoms.

South rock, 4 cables south-eastward from Middle rock, is small, and 13 feet high; it is surrounded, except on the west side, by a shoal bank which extends to a distance of nearly 2 cables. There are overfalls about half a mile southward of the rock in gales.

**LIGHT.**—A light is exhibited, at 77 feet above high water, from a circular masonry tower, painted black and white in horizontal stripes, on a white house, 39 feet high, situated on the summit of Formica Maggiore. Signals for assistance are made here; see page 34.



Formica Maggiore (North rock)  
lighthouse.

*General charts 158, 1780, 2158a, 449.*

*Plan, Talamone bay, on chart 158. Var. 8° 40' W.*

**Baia di Talamone** extends about three-quarters of a mile northward from its entrance between the promontory, on which is the village of the same name, and the point on which is Torre di Talamonaccio,  $1\frac{3}{10}$  miles to the eastward; its shores are fronted from about 3 to 5 cables by a bank of shoal water, but it affords anchorage with northerly winds. 5

Talamone village, on the western point of the bay, contains a few poor houses; it is surrounded by an old wall, and has an ancient fort surmounted by a square tower. 10

La Madonna delle Grazie, about 6 cables northward of the village, has not the appearance of a church, and is unnoticeable.

There is a small mole on the north-east side of the bay, but only small boats can go alongside it; about  $1\frac{1}{2}$  cables south-eastward of the mole a line of rocks projects about 170 yards from the shore. A small rocky patch, with 5 fathoms water and 6 fathoms close around, lies 4 cables south-eastward from the lighthouse. 15

**LIGHT.**—A light is exhibited, at 72 feet above high water, from a masonry shrine, 36 feet high, on the southern extreme of Talamone wall (*Lat. 42° 33' N., Long. 11° 8' E.*). 20

**Anchorage.**—Anchor in  $6\frac{1}{2}$  fathoms, mud, with the cemetery 312° true, and the lighthouse 252° true.

**Fortified port.**—Talamone, including the coast from Fiume Ombrone to Porto Ercole, is a fortified port. For Regulations, see page 30. 25

**The eastern point** of the bay is steep, and about a quarter of a mile eastward of it is Torre di Talamonaccio, white, square, and 344 feet above high water.

*Chart 158, C. Cavallo to Civita Vecchia.*

**The coast** from the mouth of Torrente Osa, which is southward of Torre di Talamonaccio, trends southward 7 miles, and is a white beach, the country being low and wooded. The beach should not be approached within a mile, where there are depths of from 5 to 8 fathoms. 30

Fiume dell' Albegna flows into the sea about  $3\frac{1}{4}$  miles southward of Torre di Talamonaccio, and on its left bank, about a quarter of a mile from the beach, is Torre Saline, square, large, yellowish, and 62 feet high. 35

About  $1\frac{1}{4}$  miles southward of the river is Lo Stagno di Orbetello, a salt lake, which, separated from the sea by Tombolo della Giannella, a narrow neck of land, extends 4 miles southward. The lake, which is about 7 feet deep, abounds in eels and fish; it is divided into two parts by a tongue of land which projects westward into it from the north-eastern shore, and is continued to Promontorio dell' 40

*General charts 158, 1780, 2158a and b, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 8° 40' W.*

Argentario by a dike. Orbetello town is situated on the tongue, and has a cylindrical tower surmounted by a staff, a square tower surmounted by an iron framework, and several chimneys.

- 5 **Promontorio dell' Argentario** is  $6\frac{1}{2}$  miles long north-west and south-east and 4 miles broad; **Monte Argentario**, the summit, in its south-eastern part, is 2,083 feet high. The coast is rugged, broken, and generally steep-to. From a distance the promontory appears to be an island.

- 10 *Plan, Port Santo Stefano, on chart 158.*

**The coast** from the south end of Tombolo della Giannella trends west-north-westward  $2\frac{1}{2}$  miles to Punta Lividonia; it is rocky and broken, the coves having sandy beaches at their heads.

- 15 **Torre di San Liberata** (*Lat. 42° 26' N., Long. 11° 9' E.*), cylindrical, is on a little rocky projection about 3 cables north-westward of the south end of Tombolo della Giannella.

**Buoys.**—Two red cylindrical mooring buoys lie about 2 cables north-eastward of the tower, and are used by steam vessels when loading with minerals.

- 20 **The coast.**—Torre dell' Argentiera is situated, at 830 feet above high water, on a hill about  $1\frac{1}{2}$  miles south-westward of Torre di San Liberata; it is tall, square, slender, and appears like a chimney.

Torre Calvello, 7 cables westward of Torre di Liberata and on a small conical hill, is whitish and square.

- 25 Near the sea between Torri di Liberata and Cavello, are numerous sheds and chimneys of disused works.

Punta Nera, 2 cables north-westward of Torre Calvello, is blackish and rocky.

- 30 **Porto Santo Stefano.**—Punta della Madonnetta lies one mile west-north-westward from Punta Nera, and Porto Santo Stefano, extends about 4 cables southward between them, forming two bights. The town is on a small projection between the bights, and there is a little old square fort behind it; there are houses around the bights; the campanile of the church is square and yellow in colour. Molo Acetina extends about 60 yards north-eastward from the eastern side of the town, and is being lengthened 40 yards; there are two quays which form a basin for fishing boats at the head of the east bight. A mole extends 40 yards eastward from the Health office, which is on the north point of the west bight, and a quay borders the shore southward of it.

**Lights.**—A light is exhibited from a wooden pole on the head of Molo Acetina.

*General charts 158, 1780, 2158a and b, 449.*

*Plan, Port Santo Stefano, on chart 158. Var. 8° 40' W.*

A light is exhibited, at 18 feet above high water, from an iron framework over a watch-house on a masonry base, 16 feet high, on the head of the Health office mole.

**Light-buoy.**—A light-buoy, exhibiting a *white fixed* light, marks the works for extending Molo Acetina; vessels must pass not less than 40 yards eastward of it, and should the light be extinguished the *green fixed* light on the mole must be given a berth of a cable. 5

**Buoys.**—A yellow iron mooring buoy lies about  $1\frac{1}{2}$  cables northward of the east point of the east bight. A yellow cylindrical iron mooring buoy lies about a cable north-eastward of the Health office; a red iron mooring buoy and a yellow iron mooring buoy lie southward of the Health office mole. 10

**Anchorage.**—Anchor in 14 fathoms, mud, about a quarter of a mile north-eastward of the town, with the church campanile in line with an isolated white house on the slope of a hill behind, 233° true, and Punta Nera in line with Torre Calvello, 115° true; the holding ground is not good. 15

The anchorage is open to winds between north-west and north-east, which, when strong, cause a heavy sea; very heavy squalls sometimes come down the gorges of the high land during south-westerly winds. 20

**Winds.**—North-westerly winds prevail in the fine season. In winter, southerly winds sometimes shift suddenly to the north-east and blow violently, causing a heavy sea which is particularly dangerous to small vessels. North-easterly gales occur in winter, and also north-westerly winds, locally called “provenza.” 25

In summer it is difficult to foretell weather changes by the clouds, as then the mountains are generally obscured by mist caused by the heat, and the interruption of the land and sea breezes is the best indication of a change. 30

In winter, Monte Amiata or di Santa Fiora, 5,689 feet high, situated about 35 miles north-eastward of Santo Stefano, shows clearly in fine weather; with strong south-easterly winds it is covered with mist; with southerly winds it is clear and covered with clouds at intervals. If southerly winds are blowing and Amiata is covered, should it clear for a time, a change to strong northerly and north-easterly winds is probable; in this case, a cloud, locally called “un baffo,” remains on the mount, and, if it is directed to the southward, northerly winds will predominate, but if to the south-west, north-easterly winds. 35

**Fortified port.**—Santo Stefano (*Lat. 42°26' N., Long. 11°6' E.*) is a fortified port. For Regulations, *see* page 30. 40

**Supplies** can be obtained from Orbetello, and good water from a fountain with three jets near the south end of the quay on the west side of the port.

*General charts 158, 1780, 2158a and b, 449.*

*Plan, Port Santo Stefano, on chart 158. Var. 8° 40' W.*

**Hospitals.**—There is a hospital at Santo Stefano, and one at Orbetello with 80 beds; foreigners can be received.

**Communication.**—Steamers from Leghorn to Porto Ferrajo and Civita Vecchia call weekly. Orbetello railway station is about 7 miles distant, and there is telegraphic communication.

**Punta della Madonnetta** is marked by a white pillar near the sea, and a small dark stone temple on the high land within it; the point is bordered by a bank, with 5 feet water, which extends off about half a cable, and is steep-to.

**Punta Lividonia** is  $3\frac{1}{2}$  cables westward of Punta della Madonnetta, and there is a conspicuous slender tower within it.

**LIGHT.**—A light is exhibited, at 108 feet above high water, from a small building on Punta Lividonia, with a circular tower at its west angle, 23 feet high, painted white and battlemented.



Punta Lividonia lighthouse.

*Chart 158, C. Cavallotto Civita Vecchia.*

**Signal station.**—There is a semaphore, 327 feet above high water, on Torre di Cala Grande, which is situated on the point of the same name  $1\frac{1}{2}$  miles south-westward of Punta Lividonia. The house is painted black and white in chequers.

**Isola Argentarola** (Lat.  $42^{\circ} 25' N.$ , Long.  $11^{\circ} 5' E.$ ) is about half a mile southward of Punta Cala Grande; it is small, and steep-to, except on its north side, where there is a depth of  $4\frac{1}{2}$  fathoms at the distance of half a cable; in the channel between the islet and the coast, which is about 2 cables wide, there is deep water.

Torre di Cala Piatti (del Bove), situated on Punta del Bove, three-quarters of a mile southward of the islet, is 377 feet above high water; Secca di Cala Piatti, with  $1\frac{1}{2}$  fathoms water, lies about 3 cables south-westward of the tower.

Capo d'Uomo, three-quarters of a mile south-eastward of Punta del Bove, is bare and steep; Torre Capo d'Uomo, a little within the cape, is 1,178 feet above high water, and conspicuous. Isola Rossa,  $1\frac{1}{2}$  miles south-eastward of Capo d'Uomo, and close off the coast, is small and not noticeable as it is of the same colour as the land.

A rocky spit, with two rocks above water, projects about a cable southward from the islet, inside which there is no passage.

*General charts 158, 1780, 676, 2158a and b, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 8° 40' W.*

Between Isola Rossa and Punta Ciana,  $1\frac{1}{2}$  miles south-eastward, is a bay, and on a point eastward of the islet is Torre di Cannelle.

**Telegraph cables.**—Two cables start from the shore near Torre di Cannelle; one goes to Isola Giglio, and the other to Sardinia. Their directions are marked by the alignments of beacons, and anchorage is prohibited in their locality. 5

**Punta Ciana** (*Lat. 42° 22' N., Long. 11° 9' E.*), the south-west point of the promontory, is the extreme of a rocky projection; Torre Ciana, on the point, is 121 feet above high water and cylindrical. 10

**Punta Avoltore**, the south-east point of the promontory, is rocky, bold, and steep-to; there is a square tower on it, 745 feet above high water and conspicuous.

*Plan, Port Ercole, on chart 158.*

**L'Isolotto**,  $1\frac{1}{2}$  miles north-eastward of Punta Avoltore, and nearly 2 cables off the coast, is a quarter of a mile long north-west and south-east and  $1\frac{1}{2}$  cables broad; its north end is 240 feet high, whence it slopes gradually to its south end; in the narrow fairway of the channel between it and the promontory there is a depth of 3 fathoms, rock bottom. 20

Fortino Stella, on a hill about half a mile west-north-westward of L'Isolotto summit, is 515 feet above high water, and conspicuous though not large.

**Porto Ercole**, on the eastern side of the promontory, is small; the entrance, about 3 cables wide, lies between two high points; the southern rises to Colle della Rocca, 348 feet high, with a fort on it, and the northern rises to Monte San Filippo also with a fort on its summit. Molinaccio, an old circular tower of a mill, lies eastward of the fort on Monte San Filippo, view at page 324, and Forte Santa Caterina near the northern point. The town is on the steep side of Colle della Rocca, and is enclosed by two walls, at the eastern angle of which is Batteria Santa Barbara. Grotte village is on the north-western shore of the port. 25 30

There are depths of 7 and 8 fathoms in the entrance to the port, but shoal water extends nearly  $1\frac{1}{2}$  cables off the head. 35

Secca di Santa Caterina, 2 cables eastward of Forte Santa Caterina, is a rocky patch, about  $1\frac{1}{2}$  cables in extent, with  $2\frac{3}{4}$  fathoms water and 7 to 8 fathoms close around.

**Moles.**—A small mole extends from the shore westward of the town, and there is a depth of 6 feet at its head. 40

*General charts 158, 1780, 676, 2158a and b, 449.*



*Plan, Port Ercole, on chart 158. Var. 8° 40' W.*

A mole extends 44 yards eastward from the shore near the southern part of Grotte village.

- LIGHTS.**—A light is exhibited, at  
5 300 feet above high water, from a white circular tower, 62 feet high, on the north-east bastion of Forte la Rocca.

- A light is exhibited, at 43 feet above high water, from a white circular masonry turret,  
10 9 feet high, on the north-east bastion of Batteria Santa Barbara.

A light is exhibited, at 13 feet above high water, from an iron standard at the head of the mole near Grotte village.



Forte la Rocca lighthouse.

- Anchorage.**—There is anchorage in 7 fathoms water, sand, with the south-west side of Forte Santa Caterina, bearing 327° true, and the north-west side of Fortino Stella, 227° true. Vessels of less than 10 feet draught can anchor with Forte la Rocca and Batteria Santa Barbara lighthouses in line, about half a cable from the latter. A  
20 heavy swell comes into the port with south-easterly winds.

**Fortified port.**—Porto Ercole is a fortified port. For Regulations, *see* page 30.

- Tunny fishery.**—Tunny nets are laid about 100 yards off the coast westward of Secca di Santa Caterina, and are marked by cork  
25 buoys.

**Supplies.**—Provisions are scarce, but could be obtained at Orbetello. Water can be procured from a fountain in the town.

- Communication.**—There is a mail service daily to Orbetello railway station, distant 4½ miles, and also telegraphic communication.  
30

*Chart 158, C. Cavallo to Civita Vecchia.*

- The coast.**—Tombolo di Feniglia, a low narrow neck of land, with a sandy beach on its southern side, which separates Stagno di Orbetello from the sea, trends eastward, from about half a mile northward of Monte San Filippo, 3½ miles to Punta di Ansedonia. The  
35 5-fathom line is from 2 to 7 cables off it.

- Punta di Ansedonia** (*Lat. 42° 24' N., Long. 11° 17' E.*) is a moderately high promontory with steep and rocky sides, rising a quarter of a mile within to a rounded hill on which are some ruins;  
40 Torre San Pancrazio, round, inhabited and conspicuous, is on the south-western side of the promontory, and Torre della Regina, square with a strange top, is situated on the south-eastern side. Torre Tag-

*General charts 158, 676, 2158a and b, 449.*

*Chart 158, C. Cavallo to Civita Vecchia. Var. 8° 40' W.*

liata, large and cylindrical, with some barracks near it, is on the beach immediately eastward of the promontory. The 5-fathom line surrounds the point at a distance of about 3 cables.

**Formica di Burano**, a small rock about 12 feet high, lies 2 miles south-south-eastward from Punta di Ansedonia; shallow spits extend a short distance north-eastward and southward from the rock, and there are depths of from 7 to 17 fathoms about 3 cables around it. The rock is covered by the *red* sector of Forte la Rocca light.

**The coast** from Punta di Ansedonia curves south-eastward 35 miles to Capo Linaro; it is low, sandy, and wooded, and can be approached, except near Punta Morelle, to one mile. Torre Buranaccio, on the beach 4 miles eastward of Punta di Ansedonia, is low; Capalbio village, situated on a hill, 686 feet high, 4 miles north-eastward of Torre Buranaccio, is conspicuous from seaward. Torre di Montalto,  $1\frac{1}{2}$  cables within the beach  $9\frac{3}{4}$  miles south-eastward from Torre Buranaccio, is low and square; it is on the left bank of Fiume Fiora, which is navigable by boats a short distance.

Montalto di Castro, a small town, is on a hill, 150 feet high, about  $1\frac{1}{2}$  miles north-eastward from Torre di Montalto.

**Punta Morelle** (*Lat. 42° 18' N., Long. 11° 36' E.*),  $1\frac{1}{2}$  miles south-eastward of Torre di Montalto, is low, and rocks and shallow water extend  $1\frac{1}{4}$  miles off it, the outer rock having  $3\frac{3}{4}$  fathoms water.

**Porto Clementino**, 9 miles south-south-eastward of Torre di Montalto, is a small pier with a boat camber; the buildings of a convict establishment here are noticeable from seaward.

Corneto Tarquinia, a town  $3\frac{1}{2}$  miles north-eastward of Porto Clementino, and on a high plain, has numerous towers, generally square and slender, and on its southern side is a noticeable church, 489 feet above high water. The town was built in the Middle ages, near the ruins of Tarquinia.

**The coast.**—To the southward of the Porto Clementino are large salt works, and in the middle of them are some houses and sheds with chimneys.

Torre Sant' Agostino, nearly 4 miles southward of Porto Clementino, is situated on the coast a little southward of the point where the sandy beach terminates and the coast becomes rocky.

Torrente Mignone flows into the northern part of a shoal bight northward of the tower, and is navigable by small boats for some distance.

The coast off and southward of Torre Sant' Agostino is bordered by rocks with depths of less than  $2\frac{3}{4}$  fathoms to the distance of three-quarters of a mile.

Torre Valdaliga, about 2 miles southward of Torre Sant' Agostino and near the sea, is square.

*General charts 1841, 676, 2158a and b, 449.*

*Plan 1093, Civita Vecchia. Var. 8° 30' W.*

**PORTO di CIVITA VECCHIA** (*Lat. 42° 5' N., Long. 11° 47' E.*)

lies within an outer mole, which, commencing southward of Forte Michelangelo, extends westward about 500 yards, and then turns north-westward 240 yards, joining the old Antemurale, which extends north-westward 290 yards, to Fortino del Marzocco; it then continues north-westward 490 yards. Molo del Bicchiere extends north-westward 250 yards, in a curve from the north-west extreme of Forte Michelangelo, but it is being altered, and it will extend 320 yards north-westward from the inner part of the outer mole.

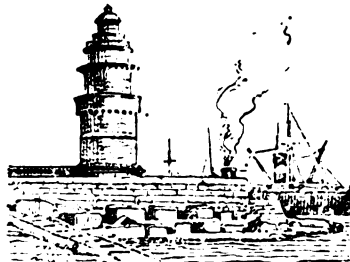
A mole extends northward 70 yards from Fortino del Marzocco, and 170 yards eastward of its head is the head of Molo del Lazzaretto, which extends north-eastward 170 yards. The entrance to the inner port, between these moles, is 170 yards wide, with a channel 80 yards wide dredged to the depth of 26 feet.

The Arsenal and Health office are on the south-eastern side of the inner port; a pier about 100 yards long extends off the Health office, and there is a new pier northward of it.

La Darsena, north-eastward of Molo del Lazzaretto and northward of the inner port, is about 5 acres in extent, with general depths of about 3 fathoms; it is entered from the inner port by a passage 66 feet wide, with a least depth of 11 feet. The north and east sides are reserved for naval purposes.

**Depths.**—The depth in the entrance channel is 26 feet; in the inner port there are depths of from 19 to 26 feet. Dredging is in progress. Although considerable dredging has been effected, the inner port can only accommodate about 7 steam vessels, others having to wait outside at considerable risk.

**LIGHTS.**—A light is exhibited, at 122 feet above high water, from a grey circular tower, with three stories, 105 feet high, on the battery at the south-east end of the old Antemurale.



Lighthouse at south-east end of the old Antemurale.

A light is exhibited, at 20 feet above high water, from a masonry support with square base, 11 feet high, on the head of the mole extending northward from Fortino del Marzocco; the keeper's hut is painted green.



Fortino del Marzocco mole lighthouse.

A light is exhibited, at 33 feet above high water, from a circular

*General charts 158, 1841, 676, 2158a and b, 449.*

*Plan 1093, Civita Vecchia. Var. 8° 30' W.*

stone turret, about 17 yards within the north-west extreme of the outer mole.

A light is exhibited, at 20 feet above high water, from a masonry support, on a square base, 18 feet high, on the south-western end of Molo del Lazzaretto; the keeper's hut is circular, and painted red.

**Buoy.**—A mooring buoy is placed near the Health office mole.

**Dredgers.**—Whilst dredging is in progress in the outer port, if the dredger remains at her post during the night, she will exhibit, besides the *white* light, two *red* lights, placed vertically. Owing to the moorings the passage is not completely clear, and steam vessels should pass about 50 yards from the light on the outer molehead, steering 117° true when entering and 297° true when leaving. A tug will assist sailing vessels, gratuitously, when entering or leaving by day.

**Pilots.**—The pilot boats lie under the shelter of the outer mole, and in fine weather pilots board vessels at a distance of 4 miles from the port; in bad weather the pilot boats do not go out of harbour, and signals to that effect are made from the flagstaff at Torre del Bicchiere watch station. The pilots' lookout house is in Fortino del Marzocco (*Lat. 42° 5' N., Long. 11° 47' E.*), and their office is on Principe Tommaso quay.

The pilotage charge is 10 centesimi per net register ton, with a minimum charge of 20 lire, and a maximum of 200 lire; if the pilotage is carried out between one hour after sunset and the following daylight the charge is increased one-tenth. The charge for shifting a vessel moored at the Antemurale to a berth further in the port is one-third of the above given charge.

**Directions.**—Corneto town and Capo Linaro are good marks when approaching the port. From the north-westward the high column of the lighthouse on the south-east end of the old Antemurale, and one of the churches are readily seen, especially in hazy weather. Entering the port, pass about 50 yards north-eastward of the lighthouse on the north-west extreme of the outer mole, and steer for the end of Molo del Lazzaretto; when northward of the lighthouse on the mole extending northward from Fortino del Marzocco steer south-eastward through the dredged channel.



Lighthouse at north-west end of the outer mole.



Molo del Lazzaretto lighthouse.

*General charts 158, 1841, 676, 2158a and b, 449.*

*Plan 1093, Civita Vecchia. Var. 8° 30' W.*

At night, approach with Molo del Lazzaretto light bearing about 115° true, and when northward of the light on the head of the mole extending northward from Fortino del Marzocco, steer through the dredged channel and anchor in the port.

**Anchorage.**—There is good anchorage, in fine weather, about 2½ cables south-westward of the lighthouse at the south-east end of the old Antemurale, in 20 fathoms, stiff mud.

Vessels anchor inside the outer mole, and secure their sterns to the mole, but in bad weather this is not considered a safe berth; hemp hawsers are recommended on account of the motion when there is any swell, and a double set should be provided, for although the local authorities supply large hemp hawsers gratuitously in cases of emergency, any damage must be paid for.

In south-westerly gales, which are frequent in winter, the sea breaks completely over the outer mole and causes vessels in the port to ride uneasily; the anchorage outside the outer mole is unsafe at that season.

**The town** (ancient Centum Cellæ) (*Lat. 42° 6' N., Long. 11° 48' E.*) extends on a level plain within the port. The principal buildings are a palace, cathedral and several churches, the arsenal, museum, and lazaretto. Forte Michelangelo, on the south-east side of the port, is square with towers at the angles, and an elevated part in the middle of the north-west front. A square clock tower surmounted by a metal framework is a little eastward of the channel into the darsena.

The population was 20,900 in 1911.

A British Vice-Consul is stationed here.

**Trade.**—The principal articles imported in 1913 were coal, fire-bricks, grain, phosphates, pig iron, pitch, and timber; the chief exports were alum, coal, charcoal, staves, calcium carbide, and cheese.

**Shipping.**—In 1913, 350 steam vessels, of 357,206 tons, and 475 sailing vessels of 26,295 tons, entered Porto di Civita Vecchia; of these 84 steam vessels of 153,474 tons were British.

**Supplies.**—Provisions are rather plentiful; drinking water is supplied from tank boats. There is no coal or patent fuel.

**Repairs.**—Small repairs can be made good at the Vallarini and Marano works.

**Tugs.**—There are five or six small tugs in the port.

**Hospital.**—The civil hospital, with 43 beds for males and 28 for females, receives foreigners at a daily rate of 2 lire for medical, and 2½ lire for surgical cases.

**Communication.**—Mail steam vessels run daily to Golfo Aranci, Sardinia, and weekly to Porto San Stefano, Porto Ferrajo.

*General charts 158, 1841, 676, 2158a and b, 449.*

*Plan 1093, Civita Vecchia. Var. 8° 30' W.*

and Leghorn. There is a station on the Genoa-Rome railway, and also telegraphic communication.

*Chart 1841, Civita Vecchia to Naples.*

**The coast** from Civita Vecchia trends south-south-eastward 5  
4 miles to Capo Linaro, and is rocky, becoming higher to the south-  
ward. Torre Marangone, 2 miles southward of Civita Vecchia, is  
square and yellow; about a quarter of a mile northward of it are some  
works with a pier, and a bridge with three arches a little southward  
of it. A bank, on which are some shoal patches, extends in places 10  
half a mile off the coast, which should not be closed to a distance  
less than a mile.

**Signal station.**—There is a semaphore station on Fosso Cupo  
(*Lat. 42° 3' N., Long. 11° 50' E.*), 466 feet above high water, situated  
about 1½ miles northward of Capo Linaro. The tower is painted black 15  
and white in chequers, and there is a house close to.

**Capo Linaro** is low, bare, and surrounded by a rocky bank, the  
5-fathom line being distant about three-quarters of a mile. Torre  
Chiaruccia stands near the cape.

**The coast** from Capo Linaro trends eastward and south-eastward 20  
25 miles to Porto Canale di Fiumicino, the northern mouth of the  
Tiber; it is low and wooded, and for about 12 miles from the cape  
is backed by mountains of from about 1,129 to 1,624 feet in height,  
their summits being some 4 miles inland; numerous small streams  
flow through the valleys. 25

About 1½ miles eastward of the cape are Santa Marinella village,  
church, and castle, with a short mole extending to the southward and  
another to the eastward; rocky patches extend nearly half a mile off  
shore between the cape and the village.

Santa Severa (ancient Pyrgos), on the coast 4½ miles eastward of 30  
Santa Marinella, is a group of houses enclosed by the fortifications  
of a large castle, which has battlemented towers at the angles, and  
the plain behind is wooded. Santa Severa was the port of the ancient  
Etruscan city of Cæra, now Cerveteri, 6½ miles to the eastward. Banks  
with from 4 to 4½ fathoms water extend nearly 1½ miles south-west- 35  
ward from the coast about half a mile north-westward of Santa Severa.  
Torre di Macchia Tonda, on a point 1½ miles south-eastward of Santa  
Severa, is square and slender. Monte Santo, 1,411 feet high, lies  
4 miles north-eastward of Torre di Macchia Tonda, and there is a  
rocky projection on its north-western side. 40

**Banchi di Macchia Tonda** are rocky patches with from  
4 to 4½ fathoms water, and from 6 to 10 fathoms between them, which  
extend 2 miles westward and southward from the coast near Torre di  
Macchia Tonda.

*General charts 158, 676, 2158a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 8° 20' W.*

**Torre Flavia** stands on the low beach 4 miles south-eastward of Torre di Macchia Tonda, and  $2\frac{3}{4}$  miles farther south-eastward is Palo village; near it is an ancient castle.

- 5 **Banchi di Flavia** extend 2 miles south-south-westward from the beach near Torre Flavia, and have  $2\frac{3}{4}$  fathoms least water, rock.

A rocky spit, with from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  fathoms water, extends  $1\frac{1}{2}$  miles southward from the coast half a mile westward of Palo village (*Lat. 41° 56' N., Long. 12° 6' E.*).

- 10 **Banchi di Palo**, with  $4\frac{1}{4}$  to  $4\frac{3}{4}$  fathoms water, lie  $1\frac{1}{2}$  miles south-south-eastward of Palo village, and extend one mile east and west.

- Caution.**—The coast between Capo Linaro, and 2 miles south-eastward of Palo village should not be approached nearer than  
15  $2\frac{1}{2}$  miles. The sea breaks on all the above-mentioned banks with winds from seaward.

- The coast.**—Torre Palidoro, on low ground about 100 yards within the beach  $2\frac{1}{4}$  miles south-eastward of Palo village, is square and noticeable. Torre di Maccarese,  $3\frac{1}{2}$  miles further south-eastward, is  
20 whitish, but partly concealed by woods, and is not conspicuous. About  $3\frac{1}{4}$  miles southward of Torre di Maccarese and 3 cables inland are two high chimneys. The 5-fathom line is about half a mile off the coast at Torre Palidoro, and one mile off within about  $1\frac{1}{2}$  miles from Porto Canale di Fiumicino.

- 25 *Plan, Mouth of the Tiber, on 160.*

- Porto Canale di Fiumicino**, the northern entrance to the Tiber, is the deeper of its two mouths, and the canal trends eastward  $2\frac{1}{2}$  miles to Capo Due Rami, where it joins the Tiber. A mole extends westward from each side of the entrance, the northern one being  
30 160 yards and the southern 270 yards long, the passage between being about 30 yards wide; the canal is of the same width to the Port office, above which it reaches 45 yards and a little more in places. The entrance is well marked by Torre Clementina, which is situated on the right bank a quarter of a mile inland; immediately above the tower  
35 is Fiumicino village. A small harbour is being constructed below Torre Clementina, and a railway bridge is being built over the canal; a swing bridge crosses the canal above the village.

- There are extensive ruins on the north side of the canal in the vicinity of which can be traced the limits of the ancient ports of Claudius  
40 and Trajan.

**Depths.**—Outside the entrance moles is a bar,  $1\frac{1}{2}$  cables in extent, with a depth varying according to the seasons, strong south-westerly winds causing it to silt up to 5 feet, and a strong current caused by

*General charts 158, 1841, 676, 1440, 2158a and b, 449.*

*Plan, Mouth of the Tiber, on 160. Var. 8° 20' W.*

rainy weather clearing it away to a depth of 10 feet. Inside the bar, and for about half a mile up, there are depths of from 11 to 16 feet. Further up in the middle of the canal there are places with one and  $1\frac{1}{2}$  fathoms water. 5

**Lights.**—A light is exhibited, at 28 feet above high water, from an iron standard over a cement hut, about 33 yards within North molehead (*Lat. 41° 46' N., Long. 12° 13' E.*).

A light is exhibited, at 11 feet above high water, from a pole about 12 yards within South molehead. 10

A light is exhibited, at 28 feet above high water, from an iron standard over a cement hut about 126 yards within South molehead.

**Caution.**—Owing to exceptional freshets in the River Tiber in the spring of 1915, some of the pile work near and within the mouth of Porto Canale has given way, and the channel is obstructed in places. 15

**Pilots.**—Pilotage is compulsory for all vessels over 11 tons net, except fishing vessels and vessels employed in coral fishing, either entering or leaving Porto Canale di Fiumicino, and in River Tiber.

The pilots of Porto Canale are under the authority of the Minister of Marine, and those of the river navigation under the Genio Civile of Rome. The jurisdiction of the Porto Canale pilots extends from the entrance to the swing bridge. 20

**Pilot signals.**—The following signals are made at the staff of the pilots' tower, situated on North mole:—

A red flag, with a smooth sea, means that the depth is insufficient to cross the bar, and, with a heavy sea, that entry is dangerous. A flag with two vertical blue bands and a white band between, on which is the letter P., means: Await the pilot, the channel is not clear. 25

**Dredging.**—Dredging operations are in progress in Canale di Fiumicino, and River Tiber. 30

**Regulations.**—1. Steam vessels approaching the dredger must indicate that they wish to pass by a whistle. The dredger will answer the whistle, and will then allow a passage.

2. The dredger, when at work, carries a ball at the masthead, and the channel is not clear for navigation until the ball has been lowered. 35

3. Vessels, when passing the dredger, should maintain a moderate speed relatively to the current in the river.

4. At night the dredger hauls in towards the river bank, and shows the regulation lights.

5. If the dredger is moored across the river by hawsers or chains a red flag by day and a red light at night are shown on the side on which the channel is blocked. 40

6. In fog, the regulation signals are made from the dredger by a whistle and bell.

*General charts 1841, 676, 1440, 2158a and b, 449.*



*Plan, Mouth of the Tiber, on 160. Var. 8° 20' W.*

**Signals.**—Capo Due Rami (*Lat. 41° 47' N., Long. 12° 17' E.*) is the north inner entrance point of the canal, and in its vicinity is a signal station which has telephonic communication with Fiumicino. A  
 5 ball, upper half red and lower half white, hoisted at the signal staff, 33 feet high, indicates that Canale di Fiumicino is occupied by an in-going vessel; vessels coming down the Tiber should then secure in the mooring berth immediately above Capo Due Rami; when the canal is clear the ball is hauled down.

10 **Current.**—The current in Porto Canale is variable, and the greatest, but not extraordinary, rate is 7 knots. Issuing from Porto Canale the current generally turns gradually north-north-westward parallel to the coast.

As considerable overfalls are caused by the out-going current from  
 15 both mouths of the Tiber caution is necessary in boats, especially with winds from seaward.

The coast in the vicinity of the mouths of the Tiber is said to be extending westward.

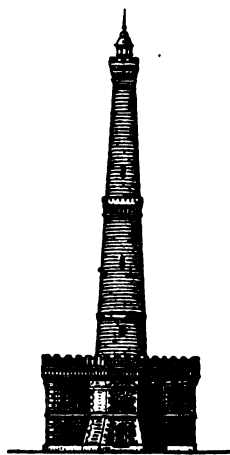
**Anchorage.**—The 5-fathom line is about one mile off-shore, and  
 20 the depth decreases gradually inside it; there is anchorage with off-shore winds, in a convenient depth, stiff mud, and good holding ground, southward of the entrance to Porto Canale, so as not to be in the current.

**Communication.**—There is railway communication between  
 25 Fiumicino and Rome. A small steam vessel runs six times monthly from Genoa and Leghorn to Rome, and two steam vessels between Sicily, Naples, Civita Vecchia, and Rome. There is telegraph communication.

30 **Isola Sacra**, between the mouths of the Tiber, is low, and covered with woods, but only partly cultivated.

**LIGHT.**—A light is exhibited, at 43 feet above high water, from the top of a building surmounted by a tower, 197 feet high, near the south-  
 35 west point of Isola Sacra. The light which was exhibited from the top of the tower has been extinguished owing to damage caused by an earthquake.

**Fiumara Grande**, or Canale di Ostia, 40 2 miles southward of Porto Canale di Fiumicino, is the southern mouth of the Tiber, and it trends east-north-eastward 3 miles. The entrance is completely blocked by sandbanks, inside which are



Isola Sacra lighthouse.

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Plan, Mouth of the Tiber, on 160. Var. 8° 20' W.*

depths of from  $1\frac{1}{2}$  to 3 fathoms, and 5 fathoms in places. Torre San Michele, on the left bank, one mile within the entrance, is octagonal.

**Currents.**—The currents at the mouth of Fiumara Grande are very variable; the general set is northward, but frequently southward and south-eastward at a rate of one knot. 5

**RIVER TIBER (Fiume Tevere)** (ancient Tiberis) rises in the Tuscan Apennines, 5 miles northward of Pieve Santo Stefano, and flows southward to 3 miles below Rome; it then turns west-south-westward, receiving many tributaries, and after a course of about 185 miles enters the sea by the two mouths already described. 10

Generally the river is sluggish, the ordinary rate of the current being from  $1\frac{1}{2}$  to 2 knots, but in spring it is subject to sudden destructive freshets, the water rising sometimes from 20 to 30 feet above its normal level. The colour of the silt brought down the river is yellow, whence the name "Yellow Tiber." 15

The channel of the river between Capo Due Armi and Rome is marked by 69 cylindrical buoys with conical tops, those to be left on the starboard hand, entering, being painted black, and those to be left on the port hand red, with the numbers in white. On account of persistent floods the channel is (February, 1915) believed to have so altered as to be dangerous. It is proposed to deepen the channel to a depth of 9 feet. 20

*Chart 1841, Civita Vecchia to Naples.*

**Ostia** (Lat.  $41^{\circ} 45' N.$ , Long.  $12^{\circ} 18' E.$ ) lies about  $3\frac{1}{2}$  miles east-north-eastward from the entrance to Fiumara Grande, and on the left bank of a former bend of the river; near it are a tower and cathedral. The modern village has a fine castle, and is the seat of a flourishing agricultural colony. Westward and nearer the river are the extensive ruins of the ancient city and Roman port of Ostium, founded 634 B.C. 25 30

**ROME (Roma)**, the capital of Italy, is about 13 miles by road from Fiumicino, and situated on both banks of the Tiber, the greater part being eastward of the river. Besides innumerable relics of antiquity it contains upwards of 300 churches, and Cattedrale di San Pietro, which is visible from the sea. The Tiber is crossed by twelve bridges, one of which is a suspension bridge, and the river above is navigated by passenger steamers. Railways connect Rome with Genoa, Florence, Ancona, Naples, &c. The population was 538,634 in 1911. A British Ambassador is stationed at Rome. 35 40

**The coast** from Fiumara Grande trends south-eastward 25 miles, to Capo d'Anzio, and is low and sandy, the 5-fathom line being about three-quarters of a mile off the beach, but sometimes sandbanks form temporarily for a few miles from the river; the land within is hilly, and thickly wooded. About 14 miles inland are the Alban mountains

*General charts 676, 1440, 2158a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 8° 0' W.*

(Monti di Albano), Monte Cavo, the summit of which, is 3,114 feet high, and surmounted by a large convent. Torre Prattica di Mare, 12 miles from Fiumara Grande, and  $2\frac{1}{4}$  miles inland on a long low ridge, is a circular building of which the upper part only is visible from seaward; it is 292 feet above high water, isolated, and a good mark.

Vessels to the south-eastward of Fiumara Grande (at night in the red sector of Isola Sacra light) must keep at least 2 miles from the coast to clear shifting sandbanks.

Villa Borghese, on the beach,  $10\frac{1}{2}$  miles south-eastward of Fiumara Grande, is a palace in ruins.

Torre Vajanica, on the beach, 2 miles south-eastward of Villa Borghese, is 13 feet high, square and reddish.

Torre San Lorenzo, on the beach 6 miles southward of Vajanica, is 30 feet high, square, reddish, and conspicuous; a belt of brushwood borders the sandy beach, and the land within is marshy and interspersed with large clumps of trees.

Torre Caldara, on the coast, 4 miles southward of Torre San Lorenzo, is 46 feet above high water, small, and circular; some submerged ruins extend half a cable off-shore here.

The coast between Torre Caldara and Capo d'Anzio,  $2\frac{1}{2}$  miles to the southward, is steep tufaceous cliffs, and a bank with about  $1\frac{1}{2}$  fathoms water extends from 4 to 5 cables off it.

*Plan, Port Anzio, on 160.*

**Capo d'Anzio** (Lat.  $41^{\circ} 27' N.$ , Long.  $12^{\circ} 37' E.$ ) is marked by the lighthouse 2 cables south-eastward of it. The coast from the cape trends eastward about half a mile to Porto d'Anzio; rocks and shoal water extend off it, the 5-fathom line being distant from 6 to 7 cables, and the ruins of the moles of the ancient Porto di Nerone extend  $2\frac{1}{2}$  cables off the coast between the lighthouse and Porto d'Anzio.

A patch with  $3\frac{1}{4}$  fathoms water lies 6 cables south-westward of the lighthouse, and there are depths of 4 fathoms for about  $1\frac{1}{2}$  cables southward of it.

**PORTO d'ANZIO** (ancient Antium), or Porto d'Innocenzo XII., lies half a mile eastward of Capo d'Anzio, and within a mole projecting about 2 cables south-south-eastward from the town, and named Molo Sant' Antonio or Molo Neroniano, from the end of which Molo Innocenziano extends eastward in a curve about 2 cables. The port has depths of from  $1\frac{1}{2}$  to  $3\frac{1}{2}$  fathoms water, sandy bottom, but a bank with from 3 to 5 feet water projects into it from the shore to the northward of Molo Innocenziano; the depths are subject to change. There is a fort on the mole, and a battery on the north shore; off the latter are ruins of an ancient mole.

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Plan, Port Anzio, on 160. Var. 8° 0' W.*

**LIGHTS.**—A light is exhibited, at 92 feet above high water, from a circular tower on a house, 39 feet high, and painted red and white in horizontal stripes, on Capo d'Anzio, about 4 cables westward of the port.

A light is exhibited, at 35 feet above high water, from a wooden support on a masonry hut, painted red, on the head of Molo Innocenziano.



Capo d'Anzio lighthouse.

**Beacon.**—A post (*Lat. 41° 27' N., Long. 12° 37' E.*), 16 feet high, surmounted by an openwork triangle, all painted black and white in horizontal stripes, stands on the west shore of the port, about 4 cables from the head of Molo Innocenziano.

**Buoys.**—A red bell-buoy, marked "Anzio" in black, is moored about one cable eastward of the head of Molo Innocenziano, and is left to the westward. Two black conical buoys, marked "Anzio" in white, and a white cylindrical warping buoy, are moored eastward of the entrance channel; these buoys are left to the northward.

Dependence should not be placed on the buoys being in position.

**Caution** is necessary in entering the port owing to the changes which occur in the depths at the entrance.

Enquiry should be made from the Port office before entering, and entry should not be made when the sea is heavy.

**Pilots.**—There are no licensed pilots. When possible a seaman of the port will direct a vessel from a boat or from the head of Molo Innocenziano, but he does not go on board; the service is gratuitous.

**Anchorage** can be obtained about half a mile south-eastward of the head of Molo Innocenziano, in  $5\frac{1}{2}$  fathoms, sand, but it is very open, and should only be used temporarily, and in fine weather.

**The town** is small, and chiefly inhabited by fishermen, but it is becoming a bathing place. There are four villas or palaces, Villa Borg-hese, one of them, three-quarters of a mile north-eastward of the town, and the Hospital di Frate Orsenigo, a long building surmounted by an aero motor, are conspicuous. The trade consists chiefly of corn, timber, staves, and charcoal.

**Water** can be obtained from a fountain in the angle between Moli Neroniano and Innocenziano. There is a small tank boat.

**Communication.**—There is a railway to Rome and to Nettuno; there is also telegraphic communication.

**Life-saving station.**—A station for affording assistance in case of shipwreck is maintained at the port.

**Nettuno town**, so called from the ruins of the ancient temple of Neptune, lies  $1\frac{1}{2}$  miles eastward of Porto d'Anzio. There is a castle at each end of the town, and some barracks a little eastward of it.

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 7° 50' W.*

- Astura.**—The coast from Nettuno trends south-eastward  $5\frac{1}{2}$  miles to Torre Astura, and is low, with sandy hummocks. Torre Astura stands in front of a low and projecting point, and is connected to the mainland by an arched bridge; a reef extends about 2 cables south-eastward from it, but there are 5 fathoms water a little more than a quarter of a mile off.

- The coast** from Torre Astura trends south-eastward 17 miles, to Monte Circeo, and is a low sandy beach, within which is a chain of narrow lakes. It should not be approached to less than  $1\frac{1}{2}$  miles eastward of the tower, nor than one mile elsewhere. The country between the Alban mountains and Monte Circeo is a swampy plain, known as the Pontine marshes. The mouth of Fiume Astura, which rises in the Alban mountains, is about three-quarters of a mile north-eastward of Torre Astura. On the coast  $2\frac{1}{4}$  miles eastward of Torre Astura is Torre Foce Verde, and Torre di Fogliano, large, light-coloured, and isolated, is 5 miles south-eastward of it; this tower shows well against the dark woods behind it. At the termination of the sandy beach, on the north side of Monte Circeo, is the ancient port of Circe.

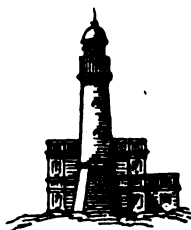
- Monte Circeo** is an isolated mass, with a rocky uneven summit, rising steeply from the sea, and extending about  $2\frac{1}{2}$  miles east and west, and  $1\frac{1}{4}$  miles north and south; near the summit, 1,775 feet high, are the ruins of the temple of Circe. The mount being situated at the south extreme of the Pontine marshes, appears to be an island from a distance. Capo Circeo is the south-west extreme of the mount.

On the coast are three towers; Torre Paola, on the north-west side, and Torre del Fico, on the south-east side, are circular, high, whitish, and conspicuous; Torre Vittoria, on the beach eastward of the mount, is square with windows.

- A submerged old jetty extends about a cable westward from the vicinity of Torre Paola. A bank with  $2\frac{1}{2}$  fathoms and less water extends about three-quarters of a mile south-eastward of Torre Vittoria.

- LIGHT.**—A light is exhibited, at 125 feet above high water, from a white circular tower with an octagonal base, 52 feet high, and a house adjoining, on Batteria Cervia, situated on the southern side of Monte Circeo.

- Signal station.**—There is a semaphore, 1,494 feet above high water, on Punta Cristoforo (*Lat.  $41^{\circ} 14' N.$ , Long.  $13^{\circ} 4' E.$* ), a peak 4 cables northward of the lighthouse.



Monte Circeo;  
Batteria Cervia  
lighthouse.

**Storm signals** are exhibited at the semaphore. See page 17.

*General charts 676, 1440, 2158a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 7° 50' W.*

**Telegraph cable.**—The cable from Ponza is landed close eastward of Torre del Fico; two beacons mark its direction, and anchorage is prohibited in the vicinity.

*Plan 1733, Ponza islands.*

**ISOLE PONTINE** are divided into two groups which lie about 20 miles north-west and south-east from each other; Isole Palmarola, Ponza, and Zannone form the north-western group (view on plan), and Ventotene and San Stefano the south-eastern. The islands are fragments of the crests of vast volcanic craters.

**Palmarola**, the westernmost of the group, lies 19 miles south-south-westward from Monte Circeo; it is  $1\frac{1}{2}$  miles long north and south, with a greatest breadth of about half a mile; it is high, steep, and nearly inaccessible, except in the middle, where there is a remarkable break, **Monte Tramontana**, 771 feet high, in the north, and **Monte Guarnieri**, 860 feet high, in the south, being connected by a low sandy isthmus.

**Punta Sconcillo** is the north-west point of the island, and **Lo Sconcillo**, a bare conical rock, lies close northward of it.

**Scogli Galere** are two rocks lying about 2 cables south-westward of Punta Sconcillo.

**Cala del Porto**, the landing place, is an open sandy beach on the west coast, about half a mile from Punta Sconcillo; off its northern side are the **Faraglioni**, two rocks 154 feet and 134 feet high, respectively, and its southern side is the small promontory of **San Silvestro**, 230 feet high, and connected to the island by a low isthmus. **Palmarola** is only frequented for bushwood, with which it is thickly covered.

**Scoglio di Mezzogiorno**, 348 feet high, is the largest of a group of rocks, which front the south-western part of the island; **Scoglio di Pidocchio**, to the southward of it, is 236 feet high, with **Scoglio Fucile**, small with an arch through it, between them; **Scoglio del Cappello**, eastward of **Pidocchio**, is low. Rocks above and below water extend nearly 3 cables westward of **Scoglio Pidocchio**, and about  $1\frac{1}{2}$  cables further westward is a patch with  $5\frac{1}{4}$  fathoms water. About  $1\frac{1}{2}$  cables southward of **Scoglio Pidocchio** is a rock with 2 fathoms water.

**Banco di Mezzogiorno**, about one mile westward of **Scoglio di Pidocchio**, is a rocky patch with 8 fathoms water.

**Punta Vardella** (*Lat. 40° 56' N., Long. 12° 52' E.*) is the south-eastern extreme of the island, and a shoal rocky bank extends about 2 cables off it; **Secca Zirri**, a rock with  $1\frac{1}{2}$  feet water, lies  $2\frac{1}{2}$  cables south-south-eastward of the point, and **Scoglio Fucile** seen midway

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Plan 1733, Ponza islands. Var. 7° 50' W.*

between Scogli di Pidocchio and di Mezzogiorno, view at page 324, leads about a cable southward of it.

- Punta Tramontana**, the north-east point of the island, is  
5 marked, on north-westerly or south-easterly bearings, by the large high rock close off it.

**PONZA**, nearly 4 miles east-south-eastward from Palmarola, is high, uneven and of irregular outline, being  $4\frac{1}{2}$  miles long and from  $1\frac{1}{2}$  cables to a mile broad.

- 10 **Monte della Guardia** (*Lat. 40° 53' N., Long. 12° 58' E.*), 928 feet high, is nearly half a mile northward of Punta della Guardia, the high south end of the island; its northern side slopes to a narrow ridge of rock which separates Cala Chiaia di Luna on the west, from Porto di Ponza on the east.

- 15 **Signal station**.—There is a semaphore, 960 feet above high water, on Monte della Guardia.

- Isolotto di Gavi**, close north-eastward of Punta dell' Incenso, the north-east point of the island, is 315 feet high and steep. The passage inside it is available for boats. A rocky patch, with  $4\frac{1}{2}$  fathoms  
20 water, lies 4 cables eastward of Gavi, and a small bank, with 9 fathoms, 4 cables northward of the islet.

**Rocks**.—Le Scoglietello (Scoglietelle), a small group of low rocks, lies about 2 cables eastward of Punta Rossa, the north point of Isolotto di Gavi; there is deep water around the group.

- 25 **Piana di Mezzo**,  $3\frac{1}{2}$  cables north-eastward of Le Scoglietello, is a low rock.

- Scoglio Grosso, half a mile north-eastward of Piana di Mezzo, is small, conical, and of moderate height; a rock with  $1\frac{1}{2}$  fathoms water lies half a cable eastward of it. These rocks lie on the narrow bank  
30 which connects Ponza and Zannone, and there is deep water around them.

- Punta del Papa**, on the north side of the island,  $1\frac{1}{2}$  miles westward from Punta dell' Incenso, is surmounted by an old white fort; there is a sandy bay on the south side of the point. **Capo Bosco**, a  
35 rugged, red, rocky point, is one mile south-westward of Punta del Papa.

- I. Faraglioni**, a group of ten rocks, some of which are high, extend about 3 cables off the coast half a mile southward of Capo Bosco, and the coast continues foul to Capo Bianco, a mile further  
40 southward. About 3 cables south-westward of the outer Faraglioni is Secca dei Mattoni, a rock with one fathom water, and from 11 to 20 fathoms around.

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Plan 1733, Ponza islands. Var. 7° 50' W.*

**Cala Chiaia di Luna**, southward of Capo Bianco, extends 4 cables eastward and affords shelter from north-easterly winds, but the water is shoal for 2 cables off the beach at its head.

**Punta della Guardia** is the south end of Faraglione della Guardia, a small high promontory, which is connected to the island by a low isthmus. 5

**LIGHTS.**—A light is exhibited, at 370 feet above high water, from an octagonal red tower on a yellow two-storied house, 58 feet high, on Punta della Guardia.

A light is exhibited, at 315 feet above high water, from a hut at the base of the lighthouse just mentioned.



Punta della Guardia  
lighthouse.

**Le Formiche**, a group of low and and sunken rocks, about 7 cables eastward of Scogli Calzone del Muto, two islets close to the coast 7 cables north-eastward of Punta della Guardia, is about 2 cables in extent, with deep water around. Punta della Guardia lighthouse in line with the southern Calzone del Muto, 238° true, leads inside the rocks, and Rotonda della Madonna light- 20  
house (south side of Porto di Ponza), bearing westward of 298° true, leads north-eastward of them. At night, the rocks are covered by the red subsidiary lights of Punta della Guardia and Rotonda della Madonna. 25

*Plan, Port Ponza, on 1733.*

**Porto di Ponza** (*Lat. 40° 54' N., Long. 12° 58' E.*), on the north side of Punta della Madonna, which is situated about 7 cables north-eastward of Scogli Calzone del Muto, is about 2½ cables wide, and extends about 4 cables west-south-westward. 30

Punta della Madonna is the extreme of some high rocky islets close together and extending 1½ cables eastward from Rotonda della Madonna, a promontory 187 feet high. Scoglio Rosso, an islet a cable north-eastward of the promontory, is steep-to.

Punta Santa Maria is the north entrance point of the port, and one cable off it is Scoglio Ravia, a high cliffy islet, with an old tower on it; the islet is connected to the point by a shoal bank on which are many rocks above and below water. Secca della Ravia, two rocky patches with 2¼ fathoms water, lie from a half to one cable eastward of the islet. 35

There are depths of from 12 to 19 fathoms in the entrance to the port, which decrease gradually to a sandy beach at the head, about a cable from which is a depth of 3 fathoms. 40

*General charts 1733, 1841, 676, 1440, 2158a and b, 449.*



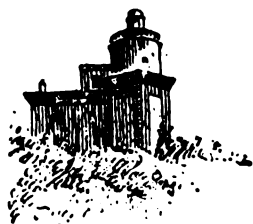
*Plan, Port Ponza, on 1733. Var.  $7^{\circ} 50'$  W.*

A mole extends 160 yards west-north-westward from the southern shore, a quarter of a mile within the entrance to the port; inside the mole are depths of  $3\frac{1}{2}$  to  $2\frac{1}{2}$  fathoms, decreasing gradually to from one to  $1\frac{1}{2}$  fathoms near the sides, but the space is limited. About 40 yards outside and parallel to the mole is a breakwater.

**LIGHTS.**—A light is exhibited, at 200 feet above high water, from a white pentagonal tower, 42 feet high, against a two-storied house, on Rotonda della Madonna hill.

A subsidiary light is exhibited, at 184 feet above high water, from a hut, 27 feet high, on the terrace of the lighthouse just mentioned.

A light is exhibited, at 39 feet above high water, from a red octagonal tower, 35 feet high, on the molehead.



Rotonda della Madonna  
lighthouse.



Mole head lighthouse.  
Porto di Ponza.

**Directions.**—Enter the bay with the molehead lighthouse bearing  $230^{\circ}$  true, which leads midway between Scoglio Rosso and Secca della Ravia.

**Anchorage.**—Anchor in the area included between a line drawn from Rotonda della Madonna lighthouse (*Lat.*  $40^{\circ} 54' N.$ , *Long.*  $12^{\circ} 58' E.$ ) to Scoglio Ravia, and from the mole lighthouse to the middle of Spiaggia di Santa Maria, in from 6 to 11 fathoms, mud. A small vessel can moor inside the mole.

**Telegraph cables.**—Cables from Monte Circeo and Isola Ventotene are landed on Spiaggia di Santa Maria, and two beacons in line mark their direction. Anchorage is prohibited in their vicinity.

**Winds.**—North-easterly and easterly winds most affect the anchorage, sending in a considerable sea; with north-westerly winds strong squalls come down the valleys between the hills.

Westerly and south-westerly winds prevail at all seasons. In winter south-west to north-west winds, if strong, do not last long; north-east and east winds, locally called garigliano and golfara, last from 3 to 8 days.

*General charts 1733, 1841, 676, 1440, 2158a and b, 449.*

*Plan, Port Ponza, on 1733. Var. 7° 50' W.*

**Current.**—The current is generally weak, and greatly influenced by the winds. Sometimes after strong winds it is strong between the islands, especially between Gavi and Zannone.

**Tide.**—A rise of from 2 to 3 feet has been observed.

5

**The town** is situated on the southern side of the port; the cupola of the church and the castle are conspicuous. The inhabitants are chiefly employed in the fisheries and cultivation of corn and fruit.

**Supplies.**—Provisions in moderate quantities can be procured. In summer the water is neither good nor plentiful at the town, but it can be obtained from tanks on the north side of the bay.

10

**Communication.**—Steam vessels run twice a week between Naples and Ponza, calling at Ventotene. There is telegraphic communication.

*Plan 1733, Ponza islands.*

15

**The coast** northward of Porto di Ponza is steep, bare, and generally of light-coloured limestone rock. Cala d'Inferno, nearly  $1\frac{1}{2}$  miles northward of Scoglio Ravia, has a landing place with steps cut in the rock, whence a footpath leads to the summit of the hills; water can be procured from two large reservoirs near the landing. Scoglio Evangelista (*Lat. 40° 55' N., Long. 12° 59' E.*), immediately eastward of Cala d'Inferno, is high and conspicuous.

20

**Isola di Zannone**, nearly  $2\frac{3}{4}$  miles north-eastward of Isolotto di Gavi, is about three-quarters of a mile long east and west, half a mile broad, and Monte Pellegrino, 604 feet high, the summit of the island, is near the middle of the northern part; the island is covered with small wood, and affords pasture to a few sheep and goats. (View on plan.) Landing can be effected either eastward or westward of Capo Nero, or at Il Varo, on the south coast, whence footpaths lead to the lighthouse.

30

**LIGHT.**—A light is exhibited, at 125 feet above high water, from a yellow octagonal tower on a one-storied house, 38 feet high, situated on Capo Nero, the north point of Isola di Zannone.

**Secca Mariolo and Secca del Varo.**—The north coast of the island is foul within  $1\frac{1}{2}$  cables. On the west coast is a rock, about 2 feet high, a cable outside which is Secca Mariolo, with 2 fathoms water.

35

Secca del Varo, with 8 feet water, lies 3 cables south-westward of Punta Varo, the south-western point of the island; about  $2\frac{1}{2}$  cables westward of Secca del Varo is a patch with  $6\frac{1}{2}$  fathoms water.

40

In the passage between Ponza and Zannone keep closer to Scoglio Grosso than to Zannone to avoid Secca del Varo.

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1733, Ponza islands. Var. 7° 50' W.*

**Scoglio della Botte**,  $7\frac{1}{4}$  miles east-south-eastward from Punta della Guardia, is 65 feet high, and steep-to, there being over 40 fathoms a quarter of a mile around.

- 5 **ISOLA VENTOTENE** (ancient Pandaria or Pandataria), Punta dell' Arco, the western point of which lies  $14\frac{1}{4}$  miles east-south-eastward from Scoglio della Botte, is  $1\frac{1}{2}$  miles long north-east and south-west, and from  $1\frac{1}{2}$  to 5 cables broad; its outline is irregular, and slopes from Monte dell' Arco, 456 feet high and near Punta dell' Arco, down to Punta Nevola (d'Eolo), 56 feet high, the north-east point of the island. The island is well cultivated and the inhabitants of the small town of Porto Nicolo are principally fishermen.

The coasts of the island are rocky, difficult of access, and, except in three places, not easy for boats to approach.

- 15 **Punta dell' Arco** is the low rocky extreme of a promontory with rounded and steep sides. A rock, with  $1\frac{1}{2}$  fathoms water, lies one cable northward, and a similar rock lies one cable westward from the point.

- 20 **Cala Parata Grande**, on the north-west coast, about one mile from Punta dell' Arco, has rocky shores with a beach at the head; there is a depth of 4 fathoms about  $1\frac{1}{2}$  cables off-shore. The mail steamer comes here when, owing to easterly winds, she is unable to approach Porto Nicolo.

- 25 **Telegraph cable.**—The cable from Ponza is landed in Cala Parata Grande; two beacons in line mark its direction. Anchorage is prohibited in its vicinity.

- 30 **Lo Sconiglio** is a large rock above water about 3 cables westward of Punta Nevola, and about a cable southward of it is a smaller rock; these rocks are situated on a rocky bank which extends from the coast to about  $1\frac{1}{2}$  cables north-westward of the rocks.

- The south coast** of the island is bordered by foul ground to the distance of  $1\frac{1}{2}$  cables; a bank with from  $3\frac{1}{4}$  to  $4\frac{1}{2}$  fathoms extends  $3\frac{1}{2}$  cables south-eastward from the coast about a mile eastward of Punta dell' Arco.

- 35 Scoglio la Nave, half a cable southward of the south point of the east coast, is 36 feet high, brown, and bare.

- 40 **Porto Nicolo** (*Lat. 40° 48' N., Long. 13° 26' E.*), near the southern part of the east coast, was constructed in the Roman epoch; it lies between two tufaceous projections, on the southern of which is the lighthouse, and was completely dug out of the rock.

Punta Pertuso, the northern projection, is about 50 yards long. The width of the entrance is about 33 yards, with 20 feet water in the middle; the Puzzillo, a blind channel within the entrance, has one

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1733, Ponza islands. Var. 7° 50' W.*

fathom water, and Porto Nicolo, the basin on the northern side of the port, has from  $1\frac{1}{2}$  to 2 fathoms water. Easterly winds send a heavy sea into the port.

**LIGHT.**—A light is exhibited, at 59 feet above high water, from an iron support on a masonry hut, 26 feet high, attached to a white house, on the point on the south side of the entrance to Porto Nicolo.

**Anchorage** can be obtained in 5 fathoms water about one cable off the entrance to the port, but it should be left on easterly winds setting in.

**Ventotene village** is on the slopes of the hills within the port, and has a square yellow castle.

**Isola San Stefano**, three-quarters of a mile eastward of Ventotene, is about 4 cables in extent, and the coasts are steep rugged cliffs. On the summit of the island, 223 feet high, is a yellow circular building, formerly a prison; there is also a well of good water.

A patch with  $5\frac{1}{2}$  fathoms water, sand and weeds bottom, lies 2 cables westward of the island, and one cable north-eastward of it is a patch with 4 fathoms water.

In mid-channel between Ventotene and San Stefano are depths of from 7 to 11 fathoms.

*Chart 1841, Civita Vecchia to Naples.*

**GOLFO di GAETA**, between Monte Circeo and Capo Miseno, with Isole di Procida and d'Ischia, and inside Isole Pontine, is 45 miles across and about 20 miles deep. The shores are generally low and flat, but rise near Terracina, Gaeta, and Mondragone; several streams flow into the bay, the principal of which are the Garigliano and the Volturno. The water is deep throughout, and the shore can be approached to the distance of a mile.

**The coast** from Torre Vittoria (*Lat.  $41^{\circ} 14' N.$ , Long.  $13^{\circ} 6' E.$* ), on the beach eastward of Monte Circeo, trends east-north-eastward in a curve nearly 8 miles to Terracina; it is low, swampy, and, especially in summer, unhealthy. Torre Olivola,  $1\frac{1}{4}$  miles north-eastward of Torre Vittoria, is square and noticeable.

**Porto canale di Badino**, the mouth of Fiume Grosso, 4 miles east-north-eastward of Torre Olivola, is marked by the two following buildings, on its right bank.

Torre di Badino, near the sea, does not show as a tower from the offing as there is a house with an inclined roof against its eastern side; on the tower is a remarkable masonry structure bearing the iron cage from which a light was formerly exhibited; a reddish building with a campanile stands a little further inland.

*General charts 1841, 1842, 676, 1440, 2458a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 7° 50' W.*

The Porto Canale, which is entered between two moles, is only suitable for small vessels of light draught. The canal is crossed, a little inside the tower, by a floating bridge, which is opened when  
5 required.

There are depths of 7 feet in the entrance, deepening to 5 fathoms a quarter of a mile off-shore.

**LIGHTS.**—A light is exhibited, at 20 feet above high water, from an iron standard with a white watch-house, on each of the moleheads.

10 **Terracina** (Anxur of the Volsci, and Tarracina of the Romans), a town with about 11,000 inhabitants, is situated partly on the declivity of a rugged eminence, and partly on the low ground, at the entrance to the canal built by Pope Pius VI., to drain the Pontine marshes. On the hill on which is the old city, isolated and conspicuous,  
15 are the ruins of a temple of Venus, and immediately below them, near the large masonry arch of Porta Napoli, is a remarkable rocky monolith. Gregoriano palace, an old large yellow building, is in the western part of the new town, near the beach.

The port is within a mole, now being lengthened, but it is only suitable  
20 for small craft. A sandbank, with 5 feet water, extends about 130 yards north-north-eastward from the present head of the mole. Near the root of the mole is the mouth of the Porto Canale di Terracina, which has masonry sides, but little depth of water.

**LIGHT.**—A light is exhibited, at 23 feet above high water, from  
25 an iron standard with a hut, about 55 yards from the molehead.

**Anchorage** can be obtained during winds between west-south-west and north-north-east, eastward of Monte Circeo and distant about  $1\frac{1}{2}$  miles from Torre Vittoria, in 7 fathoms water; or east-north-eastward of Terracina mole in the same depth, but these anchorages must  
30 be left on southerly winds setting in. The mountains northward of Monte Circeo covered with clouds indicate south-easterly winds, and clouds to the eastward of the mountains of Terracina south to south-westerly winds.

**The coast** from Terracina (*Lat. 41° 17' N., Long. 13° 16' E.*)  
35 trends east-south-eastward 16 miles to Gaeta; from Torre Canneto, situated about  $1\frac{1}{4}$  miles north-eastward of Terracina, it is low and sandy, with marshy country inland, where malaria is prevalent, to Sperlonga village, distant 8 miles, and thence is a succession of sandy beaches and bold cliffy points, backed by high, and, in places, wooded  
40 country. Monte Magno, 1,595 feet high, lies  $1\frac{1}{4}$  miles north-eastward from Sperlonga.

Torre Canneto is an isolated small white house on the beach and near the mouth of one of the streams issuing from Lago di Fondi; the

*General charts 676, 1440, 2158a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 7° 40' W.*

other stream flows into the gulf near Torre Sant' Anastasia (Anastasio),  $2\frac{3}{4}$  miles to the eastward, and both are navigable to the lake by small craft. The entrance to the eastern stream is between two moles. Torre Sant' Anastasia is square, slender, and surmounted by a white pillar. 5

**Sperlonga village** is built on a projecting rocky promontory which becomes low at its outer end, and terminates at Torre Truglia; the promontory is surrounded by rocks.

On the rocky points between Sperlonga and Gaeta are five towers; 10  
Torre Capovento,  $1\frac{1}{2}$  miles from Sperlonga and on the summit of a steep and moderately high rocky cliff, is whitish and cylindrical. Torre Sant' Agostino,  $2\frac{1}{4}$  miles further south-eastward, has a ruin and a small house near it.

*Plan, Gaeta bay, on 160.*

15

**Monte Orlando** promontory, 7 miles from Sperlonga, is three-quarters of a mile long north-east and south-west, about 4 cables broad, and its summit, in the south-eastern part, is 548 feet high; it is connected to the wooded land to the westward by a low isthmus, and a rocky spur projects about 4 cables eastward from it. The south coast 20  
of the promontory is steep precipitous cliffs.

**Signal station.**—There is a semaphore on Torre Orlando, which is white with black stripes near the top and 604 feet above high water, situated on the summit of Monte Orlando.

**Storm signals** are exhibited at the semaphore. See page 17. 25

**Baia di Gaeta.**—Punta dello Stendardo (*Lat. 41° 13' N., Long. 13° 35' E.*) is the north point of the rocky spur eastward of Monte Orlando promontory, and Baia di Gaeta extends about 2 miles north-westward between it and Torre Fico on the southern end of a promontory, nearly 5 miles east-north-eastward; the shore of the bay 30  
should not be approached nearer than half a mile.

**Gaeta town** (ancient Caieta) is chiefly built on the rocky spur eastward of the promontory of Monte Orlando, but partly on the north side of that promontory.

It has a cathedral, several churches, convents, and hospital, and 35  
about 5,625 inhabitants. The large castle, now a prison, in the eastern part of the town, is noticeable, and the town appears from the anchorage to be surrounded by fortifications, within which the campanile of Sant' Erasmo cathedral and the church of Santo Francesco are conspicuous. 40

Elena, the old suburb of Gaeta, extends along the western shore of the bay northward of Gaeta, and on the road leading to Formia; its houses are low and white. The population is about 11,169.

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Plan, Gaeta bay, on 160. Var. 7° 40' W.*

Torre Atratina, on the north part of Monte Atratina, about 2 cables inland and westward of Elena, is red, circular, and conspicuous; and Convento dei Cappuccini, a white building, about 2 cables further  
5 northward, is also noticeable.

Several small piers extend off the towns; the largest is Il Pizzone, at the north end of Elena.

**Porto di Gaeta**, between Punta dello Stendardo and Punta Sanita, about a cable south-westward, is small, and has a depth of  
10 7 fathoms in the middle decreasing rapidly to the shores; there are about  $1\frac{1}{2}$  fathoms alongside the quays. The eastern part of the port is named Magnamanica, and the western part della Porta.

**LIGHTS.**—A light is exhibited, at 244 feet above high water, from Torre Santa Caterina, a yellowish circular tower with an octa-  
15 gonal upper part, 74 feet high, situated on the south-east extreme of the rocky spur eastward of Monte Orlando promontory.

A light is exhibited, at 62 feet above high water, from a white hexagonal turret, 15 feet high, near the extremity of the bastion on Punta dello Stendardo.

20 **Rock.**—A rock with 5 feet water lies about half a cable north-westward of Punta Sant' Antonio, the north point of Monte Orlando promontory.

**Secca della Colonna** (*Lat. 41° 13' N., Long. 13° 35' E.*) lies about 60 yards off-shore east-north-eastward of Torre Atratina, and  
25 on it is an iron tripod and staff surmounted by a black and white mark.

**Buoys.**—A white iron cylindrical mooring buoy lies northward of Punta dello Stendardo, and eleven white conical mooring buoys, disposed in three lines running north and south, are placed in the bay, the  
30 outer line consisting of three, the middle of five, and the inner of three buoys. The two outer lines are for large vessels, and the inner for vessels not over 4,000 tons, in winter. The cable can be shackled direct to the cylindrical buoy, but the conical buoys only support the chain attached to the bridle. These buoys are for the use of Italian  
35 vessels of war.

Two white conical mooring and warping buoys lie in the port of Magnamanica for the use of torpedo vessels.

Four buoys mark works in progress near Punta Sant' Antonio; the area within these buoys must not be entered.

40 A mooring and a warping buoy lie off Elena.

**Anchorage.**—Baia di Gaeta affords good anchorage during winds from south, through west, to north-east; it is open to the south-east, and with north-east winds there is a considerable surf in the port;

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Plan, Gaeta bay, on 160. Var. 7° 40' W.*

the wind, however, seldom blows home, but the swell is sometimes heavy. The best anchorage is, especially in winter, in about  $6\frac{1}{2}$  fathoms, black mud and clay, off the shore between Punta Mulino and Il Pizzone, half a mile to the northward. It is advisable to frequently sight the anchors. Anchorage is prohibited immediately westward of Punta dello Stendardo, as this locality is used by torpedo boats. 5

**Fortified ports.**—Gaeta and Formia, including the coast between Torre Capovento and Torre Giano, are fortified ports. Regulations, *see* page 30. 10

**Tide.**—It is high water, full and change, in Porto di Gaeta, about VIIh. 15m.; rise about one foot; the tides are not regular; strong westerly winds raise the water a foot above the normal level.

**Winds.**—In fine weather north-west to north-east winds prevail at night, and continue until after sunrise, when it becomes calm, and about 9h. a.m. the sea breeze sets in from the south-south-east, gradually veering, through south, to west-south-west and blowing fresh until the evening when it fails, and is succeeded by the land breeze. In unsettled weather there are often heavy squalls from the north, with rain, lightning, and thunder, at night. 15 20

**Current.**—A current sets southward on the west shore of the bay during southerly winds; on the wind veering to north-west it turns to the opposite direction.

**Supplies.**—Provisions are abundant. Water is scarce, but a floating tank supplies water, obtained at Formia, to vessels of war. There is no coal on sale. 25

**Hospital.**—The civil hospital has 400 beds, and receives medical and surgical cases, provided they are neither venereal, chronic, nor infectious, at 1.5 lire daily.

**Communication.**—There is a branch railway from Gaeta, *via* Formia, to Sparanise, where it connects with the line from Rome to Naples. 30

There is also telegraphic communication.

**Torrente Pontone.—Pier.**—A wooden pier extends about 220 yards south-eastward from the shore about half a cable south-westward of the mouth of Torrente Pontone, which flows into the bay nearly a mile north-eastward of Il Pizzone. 35

**Light.**—A light is exhibited, at 12 feet above high water, from the pierhead.

**Porto di Formia, or La Villa** (*Lat. 41° 15' N., Long. 13° 36' E.*), locally called Caposele, nearly a mile east-north-eastward of Torrente Pontone, is about 100 yards in extent and protected by two rocky 40

*General charts 1841, 676, 1440, 2158a and b, 449.*



*Plan, Gaeta bay, on 160. Var.  $7^{\circ} 40'$  W.*

moles; there is a depth of about  $1\frac{1}{2}$  fathoms in the entrance, and inside the water shoals gradually to the shores.

**Light.**—A light is exhibited, at 20 feet above high water, from a dark grey iron column, on the head of the western mole of Porto di Formia.

**Secca la Pila**, with 3 feet water, lies 2 cables south-eastward of Porto di Formia mole light-column, and was marked by a beacon which has been destroyed by the sea; the east side of the rock must be given a good berth.

**Buoys.**—Secca la Pila is on a bank with general depths of from  $1\frac{1}{2}$  to 2 fathoms, which extends nearly 4 cables off the shore near Porto di Formia, and a conical buoy is moored at its south extreme.

A mooring buoy lies on the bank about a cable south-eastward of the entrance to the port.

**Formia** (ancient Formiæ, some of the ruins of which still exist) stands on the shore a little eastward of the port and on the Appian way; there are about 8,450 inhabitants.

Torre Mola, on the shore at the eastern end of Formia, is whitish and circular; on each side of the tower is a wooden landing pier, the south-western one being for public use.

*Chart 1841, Civita Vecchia to Naples.*

**The coast** from Torre Mola trends eastward, and is a sandy beach  $2\frac{1}{2}$  miles to a rocky promontory, on the coast of which are: Torre Foce, square and near the mouth of Torrente Foce; Torre Giano, circular; Torre Fico, small, circular, and broken in front; and Torre Scavori (*Lat.  $41^{\circ} 15'$  N., Long.  $15^{\circ} 42'$  E.*), square.

Maranola village, on the mountain side, about  $1\frac{1}{2}$  miles north-north-eastward of Torre Mola, has a square slender tower, and  $2\frac{1}{2}$  miles eastward of it is Castellonorato village, situated on a hill, 1,026 feet high, and having a small square tower.

The coast from Scavori, on the eastern side of the rocky promontory just mentioned, trends south-eastward 17 miles to the mouth of Fiume Volturno. Scavori village has some high chimneys, and three piers extend off the coast in its vicinity. Faraglioni are some rocks nearly awash extending about a cable off the coast eastward of the promontory. A sandy beach extends from Scavori to Fiume Garigliano, a distance of  $3\frac{1}{2}$  miles. Torre Argento, circular, is situated on a little rocky hill, 2 miles from Scavori, which abruptly breaks the line of sandy beach, and northward of it is Minturno village.

**Fiume Garigliano** (ancient Liris) rises near Lago Fucino, and flows south-eastward, receiving the waters of the Sacco and Melfa; at 8 miles inland it turns westward, and passing through the plain of

*General charts 1841, 676, 1440, 2158a and b, 449.*

*Chart 1841, Civita Vecchia to Naples. Var. 7° 30' W.*

Sasso enters Golfo di Gaeta, after a course of 75 miles. The mouth of the river is well marked by Torre Punta Fiume (*Long. 41° 13' N., Lat. 13° 46' E.*), square and slender, situated on the left bank. The bar, which shifts according to the water coming down, and also from heavy weather, only permits the entry of vessels of less than 3 feet draught, which can ascend the river a short distance. 5

**The coast** between the Garigliano and Volturno is a low sandy beach, the country inland being flat and marshy. Torri Limatola and Mondragone stand on the beach about midway, and between them is a group of hills. Torre Limatola is light-coloured and circular, and there are two houses north-westward of it; Torre Mondragone is whitewashed and circular. The 5-fathom line is a mile off-shore, which should not be approached within that distance. 10

**Fiume Volturno** (ancient Volturnus) rises in the Apennines in the province of Campo Basso, and flows south-eastward to its junction with the Calore from the eastward, about 22 miles from the coast; it then turns westward, and passing the city of Capua, enters Golfo di Gaeta, 14 miles southward of Fiume Garigliano, after a course of 90 miles. The river entrance is broad, but encumbered by sandbanks, and the bar has only 3 feet water; as the bar extends considerably seawards from the entrance a good berth should be given to the light-house. 15 20

Torre di Castelvoturno, about one mile eastward of the south entrance point of the river, is square, and isolated on a low plain, and on the left bank,  $1\frac{1}{2}$  miles within the entrance, is Castelvoturno village, with a church which has a square campanile; the tower and village are conspicuous from seaward. The country is fertile, and its grapes and wine are notable. 25

**LIGHT.**—A light is exhibited, at 28 feet above high water, from a metal trellis tower on a masonry base, 21 feet high, on the south entrance point of Fiume Volturno. 30

**The coast** from the entrance to Fiume Volturno trends south-south-eastward 15 miles to Punta di Fumo, the south-west point of Monte di Procida; it is a sandy beach with a large low plain inside it, southward to Torre Patria, where the hills commence to approach the sea. 35

*Plan 1728, Gulf of Naples.*

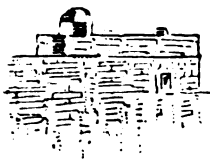
Torre Patria stands on the beach  $7\frac{1}{2}$  miles southward of the entrance to Fiume Volturno, near the entrance to Lago di Patria, and 3 miles farther southward is the entrance to Lago di Licola, a narrow sheet of water  $1\frac{1}{2}$  miles in length lying parallel to the shore; at the southern end of the lake, near the beach, are the ruins of Cuma, the ancient 40

*General charts 1841, 676, 1440, 2158a and b, 449.*

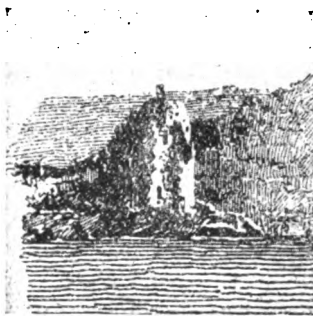
*Plan 1728, Gulf of Naples. Var.  $7^{\circ} 30'$  W.*

Kyme of the Greeks. The country southward to Punta di Fumo is undulating and of moderate elevation.

- Measured distances.**—Distances have been measured off Torre Patria and Licola. The running course is Torre Gaveta in line with the middle of a black and white chequered mark on Casa Scotto di



Casa Scotto di Marco.

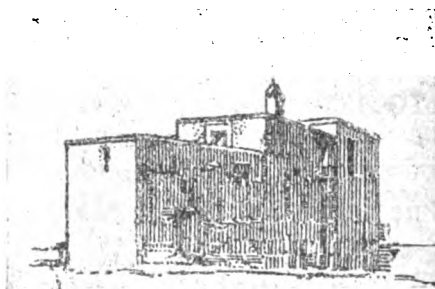


Torre Gaveta.

- Marco, on the summit of a hill of Monte di Procida, bearing  $148^{\circ}$  true. The north limit is Torre Patria in line with a black and white chequered masonry pyramid about  $2\frac{1}{2}$  cables inland,  $58^{\circ}$  true. The middle limit is two black and white chequered masonry beacons, about 2 miles southward of Torre Patria, in line  $58^{\circ}$  true. The south limit is a black and white chequered masonry beacon on the beach southward of Torre di Licola in line with the chimney of Casa Chianese or



Torre Patria.



Casa Chianese.

- Paglietta on top of a hill,  $58^{\circ}$  true. The distance on the course between the north and middle limits is 11,772 feet, and between the middle and south limits 6,174 feet. The depths on the course are from 13 to 19 fathoms.

**Torre Gaveta (Alta)** (*Lat.  $40^{\circ} 49'$  N., Long.  $14^{\circ} 2'$  E.*),  $3\frac{1}{2}$  miles southward of the entrance to Lago di Licola, is on a rocky point

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

at the end of the sandy beach which extends southward from Fiume Garigliano; a short distance south of the tower is the entrance to Lago Fusaro, the land southward of which rises to the rugged headland Monte di Procida. A railway runs from Naples to Torre Gaveta, whence there is a service of small steam vessels to Procida, Ischia, and Capri. A broad stone mole projects from the coast southward of Torre Gaveta, and there is a depth of about 6 feet at its head. Near the root of the mole is a red stone hut, surmounted by a flagstaff; a ball is hoisted here when landing is impossible at the mole, and then a similar signal is hoisted at Punta Piopetto lighthouse, so that vessels bound to Torre Gaveta may proceed to Baia. 5 10

**Shoal.**—A small rocky shoal, with  $1\frac{1}{2}$  fathoms water, lies half a mile south-westward of Torre Gaveta.

**Scoglio San Martino**, 3 cables off-shore, nearly a mile southward of Torre Gaveta, is high with a flat top; there is shoal water around the rock and southward of it foul ground extends some 3 cables from the shore. 15

**The coast** from Punta di Fumo (*Lat.*  $40^{\circ}47'N.$ , *Long.*  $14^{\circ}3'E.$ ), which has a tower on it, trends east-south-eastward  $2\frac{1}{4}$  miles to Capo Miseno; it is high for about three-quarters of a mile from the point when it falls to Miniscola beach, low and sandy, which continues to Capo Miseno promontory (page 368). Foul ground extends about 3 cables south-westward of Punta di Fumo, and continues from one to 2 cables off the coast to the eastward; there are depths of from  $3\frac{1}{4}$  to 4 fathoms between it and Secca del Torrione. 20 25

Pietra Nera (Pietre Nere), a rocky bank, partly above water, extends about 2 cables southward from the western end of Miniscola beach.

**Canale di Procida**, between Monte and Isola di Procida, is  $1\frac{1}{2}$  miles wide, but the navigable portion is contracted by the foul ground extending from Punta di Fumo and Secca del Torrione, and shoal patches northward of Isola di Procida. The channel southward of Secca del Torrione is 4 cables wide with a depth of from  $4\frac{3}{4}$  to  $5\frac{1}{2}$  fathoms, sand. 30 35

**Secca del Torrione**, 7 cables southward of Punta di Fumo, and in the middle of the channel, is about 3 cables long east and west, and has a least depth of  $2\frac{1}{2}$  fathoms.

**Light-buoy.**—A red truncated conical light-buoy, surmounted by a little framework on which is "Torrione" in white, is moored in  $6\frac{1}{2}$  fathoms water on the southern side of Secca del Torrione, and exhibits a red flashing light every six seconds, flash two seconds. 40

**Secca di Marsiglia**, about half a mile west-south-westward of

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

Secca del Torrione, has 4 fathoms water, but the depth decreases quickly to the southward.

- Directions.**—Approach from the westward with Capo Miseno lighthouse bearing 90° true, and on nearing the light-buoy steer to pass close southward of it; if the buoy is not in position, when Punta della Lingua bears 180° true steer 117° true, but caution is then necessary.

- ISOLA di PROCIDA** (ancient Prochisia), 1½ miles south-westward of Punta di Fumo, is 1½ miles long and from a half to 1¼ miles broad, of irregular outline, and of volcanic origin. View on plan 1728. The island is from 130 to 230 feet high, covered with orchards and vineyards, and there are many groups of houses. The population is about 14,440, chiefly fishermen engaged in the tunny and coral fisheries. Procida (*Lat. 40° 46' N., Long. 14° 2' E.*), the chief town, is on a large tufaceous mass at the eastern end of the island; the houses, the castle with a semaphore in the east part of the town, and a white cupola are noticeable.

- Punta della Lingua, the north-east point, is bold; there is a rocky patch with 3 fathoms water about 2 cables north-eastward of the point, and a group of rocks above water lies a short distance eastward of it, with 5 fathoms about a cable off. Punta dei Monaci, nearly half a mile southward of Punta della Lingua, is bare and rocky, with a convent on it. The east side of the island, southward of Punta dei Monaci, is divided into two bays, nearly equal in size, by Punta Pizzaca; Cala di Coricella, the northern, has depths of from 4 to 15 fathoms, but the 5-fathom line is about a quarter of a mile off the north-western shore, with shoal water close inside, and it is open south-eastward; the southern bay has depths of from 28 to 57 fathoms.

- The water is deep round Punta Socciaro (the south-east point), and there is a good boat harbour between it and the south-west point, partly sheltered by Isola di Vivara. The west coast is a sandy beach, named Ciraccio, one mile northward to Punta Bove, which is a high and rugged projection; it then continues northward half a mile to Punta del Fiumicello; this coast is bordered by rocks and shoal water to the distance of one-quarter of a mile.

- The north coast between Punta del Fiumicello and Punta Piopetto (Pioppetto), 3½ cables east-north-eastward, is steep to at the distance of about a cable, whence to Punta della Lingua it is bordered by a bank with depths of from about one to 2¼ fathoms, which commences close south-eastward of Punta Piopetto, and extends nearly 3 cables from Punta della Lingua. Marina di Procida lies on the coast, about half a mile from Punta

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

Piopetto, and in the middle of it is the church of San Giovanni with a square campanile. A mole extends northward 2 cables from the Marina, and there is also a small wharf with about 6 feet water along-side.

**LIGHT.** — A light is exhibited, at 67 feet above high water, from a red square tower on an octagonal building, 43 feet high, on Punta Piopetto.

A ball is hoisted at a flagstaff near the light-house when landing is impracticable at Torre Gaveta.



Punta Piopetto  
lighthouse.

**Anchorage** can be obtained in about 8 fathoms water, westward of Secca di Marsiglia and half a mile north-westward of the head of Molo di San Giovanni. Small vessels in fine weather can go alongside the wharf, avoiding Secca del Salpato, with 5 feet water, which lies three-quarters of a cable westward of the molehead.

When, owing to northerly winds, landing is difficult at Marina di Procida, the mail steamers go to Cala di Coricella.

**Signal station.**—There is a semaphore, 335 feet above high water, on the highest part of the castle (*Lat. 40° 45' N., Long. 14° 2' E.*), in the east part of the town; the house is painted black and white in chequers.

**Tunny fishery.**—Tunny nets extend  $8\frac{3}{4}$  cables west-north-westward from Ciraccio beach, half a mile southward of Punta Bove, and are marked by two buoys.

**Isola di Vivara**, separated by a pass, 130 yards wide, from the south-western part of Isola di Procida, is about half a mile long north and south, from one to 3 cables broad, 358 feet high, covered with brushwood, and has an old tower on its summit. Golfo di Genito, a bay about 4 cables wide between it and Isola di Procida, affords shelter for coasting vessels from winds between west, through north, and east.

**Formiche di Vivara**, half a mile westward from the western point of Vivara, is about  $1\frac{1}{2}$  cables in extent, and has 2 fathoms water, and from 8 to 12 fathoms around. The bottom in the vicinity is very uneven, there being patches with 9, 8, and  $4\frac{1}{2}$  fathoms water, within three-quarters of a mile to the northward, and a patch with 6 fathoms water about 4 cables south-eastward.

**Light-buoy.**—A red truncated conical light-buoy, surmounted by a little framework, on which is Vivara in white, is moored on the western side of Formiche di Vivara, and exhibits a red occulting light every ten seconds, eclipse five seconds.

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

- ISOLA D'ISCHIA** (ancient Inarime Ænària and Pithecusa), 1½ miles westward of Vivara, is 5½ miles long east and west, and from 3¼ to 4¼ miles broad. The island is volcanic and mountainous; Monte Epomeo, 2,598 feet high, the highest peak, on which is the hermitage of San Nicola, is an extinct volcano, and there are several other craters on the island. Views on plan 1728.

Earthquakes occurred in 1881, 1883, and 1887.

- The island is fertile, producing grapes, figs, and other fruits, and on the hilly ground are oak, ilex, chestnut, and shrubs. There are many hot mineral springs, especially near Casamicciola village, on the north side of Monte Epomeo, which are much resorted to.

The inhabitants are chiefly occupied in fishing and agriculture; brickmaking and straw work are local industries.

- The chief towns are Ischia in the north-east part, Forio in the west, Lacco (partly destroyed by earthquake) in the north, and Panza, Fontana, and Barano in the south. Ischia was first colonised by the Greeks.

- The coast is chiefly rocky, and in places bold and precipitous, especially on the south-east side; shoal water and rocks extend nearly half a mile off the north and west coasts.

- Ischia.**—Castello d'Ischia (*Lat. 40° 44' N., Long. 13° 58' E.*) is on a high circular rock, named Negrone, off the east side of the island, and connected to it by a dike 400 yards long, through which is a boat passage with an arch over it. The east side of the rock is steep-to, but a bank extends nearly 2 cables from the coast both northward and southward of the dike, and on the south side are Scogli di Sant' Anna, a group of rocks above water. Coasting vessels moor northward and southward of the rock according to the wind. The town of Ischia extends along the coast between the root of the dike and Porto d'Ischia, 1½ miles north-westward, and has a small cathedral; there are about 7,000 inhabitants.

**LIGHT.**—A light is exhibited, at 131 feet above high water, from a grey iron framework 8 feet high, on Castello d'Ischia.

- Communication.**—There is communication with Naples and Pozzuoli daily.

- Porto d'Ischia** (del Bagno) is a basin, about 1½ cables in extent, with an entrance 112 feet wide, open north-eastward. A curved mole extends north-eastward about 300 yards from the western entrance point into a depth of 2¾ fathoms, and there are about 2¼ to 3 fathoms water on the eastern side of the mole, but a sandbank with less than 6 feet water extends a short distance off it; 2 cables northward of the mole head is a depth of 3¼ fathoms, and about 3 cables eastward of the mole head a patch with 2¼ fathoms, outside which

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

the water rapidly deepens; there are depths of about 3 fathoms in the entrance and middle of the port.

There is a ridge of rocks above water on the east side of the channel entrance. The port is surrounded by quays and walls, and there is a depth of 14 feet at 12 feet from the quays in the south-eastern part. A rock above water on the south-western side is provided with bollards. Vessels of 12 feet draught enter the port, and vessels of 14 feet draught have entered with the assistance of a pilot.

The port is an old volcanic crater, and there is also a deep crater half a mile south-westward of it.

**LIGHTS.**—A light is exhibited, at 44 feet above high water, from a red circular tower with a grey rectangular base, 36 feet high, on the molehead.

A light is exhibited, at 14 feet above high water, from a red conical turret on each side of the entrance to the port.



Porto d'Ischia; mole lighthouse.

**Tides.**—It is high water, full and change, in Porto d'Ischia, at VIIIh. 50m.; rise  $1\frac{1}{4}$  feet.

**Trade.**—Wine and fruit are exported.

**Supplies.**—Provisions can be obtained, but at present fresh water can only be procured from a steam water boat which supplies the town from Naples; a water supply from the hills to the town is nearly completed (1915).

**Communication.**—Small steamers run three times daily between the port and Naples and Torre Gaveta or Baia, and there is telegraphic communication.

**The coast** from Porto d'Ischia (*Lat. 40° 45' N., Long. 13° 56' E.*) is rocky to Punta della Scrofa, one mile westward, and thence is chiefly a sandy beach  $1\frac{3}{4}$  miles westward to Punta Vico; Marina di Casamicciola is on the middle of the beach, and has a small mole with a landing place; on the slopes of Monte Epomeo, about half a mile inland, is the large Casamicciola village, which has been rebuilt since its destruction by the earthquake in 1883. At the western end of the beach is the Marina di Lacco Ameno.

**Rocks.**—A rock, with 2 fathoms water, lies about 3 cables northward of Punta della Scrofa, and the coast is bordered by foul ground to the distance of about 4 cables westward to Punta Vico.

Secca del Santuario, with one fathom water, lies 3 cables off-shore about one mile westward of Punta della Scrofa.

**Tunny fishery.**—Tunny nets extend about 7 cables northward

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*



*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

from the coast off Marina di Lacco Ameno, and are marked by red flags by day and by a boat with a white light at night.

**Punta Vico** is the east point of a steep and rocky promontory, 413 feet high, and there is a tower on it.

**Punta Cornacchia**, the north extreme of the island, is the eastern point of Guardiola di Zale, a bold headland, faced with cliffs, half a mile in extent, which projects north-westward; on the point is a noticeable villa which appears to be a large square tower.

**The west coast** from Punta del Caruso, the west point of Guardiola di Zale, trends southward about 3 miles to Punta Imperatore. On a low point nearly midway is Forio town, which has a population of about 7,200; in the bay north of the town a shoal bank extends a quarter of a mile off-shore, but off the town and in the bay between Forio and Punta Imperatore (*Lat. 40° 43' N., Long. 13° 51' E.*) shallow rocky patches extend off half a mile. There is a small mole on the north side of the town, and there are mineral springs in the locality; the vine is extensively cultivated.

**Banca di Forio**,  $1\frac{1}{2}$  miles westward of Forio mole, is small, with 25 fathoms water, and from 59 to 81 fathoms around.

**Punta Imperatore** is the extreme of a promontory, 745 feet high; a spit, with  $1\frac{1}{2}$  fathoms water, projects about a cable westward of it.

**LIGHT.**—A light is exhibited, at 538 feet about high water, from a white tower adjoining a white two-storied house, 44 feet high, situated on Punta Imperatore.

**Signal station.**—There is a semaphore on the heights of Punta Imperatore, 781 feet above high water.

**Storm signals** are exhibited at the semaphore. See page 17.



Punta Imperatore lighthouse.

**The coast** from Punta Imperatore trends south-eastward  $2\frac{1}{2}$  miles to Punta Sant' Angelo, and is bold, with several high rocks close off it. Punta Sant' Angelo is a small rocky promontory, 325 feet high and surmounted by a ruined tower, connected to the coast by a low and sandy isthmus. In the bay on the west side of the point, and  $1\frac{1}{2}$  cables from the shore, are two rocky patches, with  $1\frac{1}{2}$  and 2 fathoms water, and in the bay on the east side a shallow bank extends a quarter of a mile off a sandy beach  $1\frac{1}{2}$  miles in extent; the point is steep-to.

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 30' W.*

The coast from Capo Grosso, the eastern point of the bay just mentioned, trends eastward  $1\frac{1}{2}$  miles to Punta San Pancrazio, on which is a chapel, and thence northward  $1\frac{3}{4}$  miles to Castello d'Ischia; it is indented, faced by high cliffs, and steep-to, except for about half 5  
a mile southward of the castle.

**Canale d'Ischia**, between Vivara and Ischia, is  $1\frac{1}{4}$  miles wide, and, excepting Formiche di Vivara, is deep and clear. From the northward steer through the channel with Castello d'Ischia bearing  $180^\circ$  true until Punta Socciaro is open southward of Punta Mezzodi, 10  
the south point of Vivara, when turn south-eastward; from the southward pass a quarter of a mile north-eastward of Castello d'Ischia, and steer about  $342^\circ$  true. Porto d'Ischia mole lighthouse bearing  $270^\circ$  true leads northward of Formiche di Vivara.

**Winds.**—The western side of Monte Epomeo covered with clouds 15  
indicates southerly and south-easterly winds; Monte Circeo showing very clearly indicates westerly winds.

**Currents.**—The currents along the coasts of Isola d'Ischia are weak, and usually set with the wind. In Canale d'Ischia the currents attain considerable rates, which and the directions are uncertain. 20  
In fine settled weather the direction changes every six hours, the streams becoming tidal.

**GULF OF NAPLES (Golfo di Napoli)** lies between Ischia, Procida, and Capo Miseno (*Lat.  $40^\circ 46' N.$ , Long.  $14^\circ 5' E.$* ) on the north, and Capri and Punta Campanella on the south; Bocca 25  
Grande, the main entrance, is 14 miles wide between Ischia and Capri, whence the gulf extends 17 miles east-north-eastward. The other entrances to the gulf are the Canali di Procida and d'Ischia, already mentioned, and Bocca Piccola, between Capri and Punta Campanella, which is  $2\frac{3}{4}$  miles wide, clear and deep. 30

The water is deep throughout and the shores can be approached to less than a mile. At the entrance to Bocca Grande there are depths of from 112 to 560 fathoms between the 100-fathom contours, except in the middle, where there is a bank 4 miles long north-east and south-west and  $1\frac{1}{4}$  miles broad, with depths of from 73 to 100 fathoms. 35

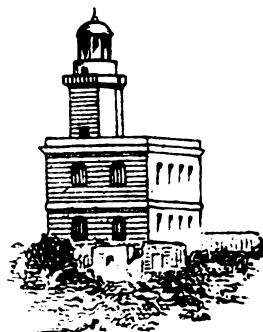
Mount Vesuvius,  $3\frac{1}{2}$  miles within the head of the gulf, is conspicuous, the surrounding country being low. The north shore of the gulf is hilly, and the country is covered with craters of extinct volcanoes. A ridge of mountains extends the whole length of the promontory on the south side of the gulf; Monte Sant' Angelo, 4,734 feet 40  
high, at the eastern end of the ridge, is the highest peak; it falls on its north side to the low land between it and Mount Vesuvius.

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Pozzuoli bay, on 1400. Var.  $7^{\circ} 20'$  W.*

- Capo Miseno**, situated about 2 miles east-south-eastward of Punta di Fumo, is the south extreme of a bold rocky promontory, 551 feet high, connected to the land to the northward by a low isthmus.

- LIGHT.**—A light is exhibited, at 292 feet above high water, from an octagonal tower over a square house, 75 feet high, and painted white, with ash-coloured cornices, on Capo Miseno (*Lat.  $40^{\circ} 46'$  N., Long.  $14^{\circ} 5'$  E.*).



Capo Miseno lighthouse.

*Plan 1728, Gulf of Naples.*

- Banco Mezzogiorno**,  $1\frac{1}{2}$  miles southward of Capo Miseno, is about 4 cables long north-east and south-west,  $1\frac{1}{2}$  cables broad, with 14 fathoms least water, and from 23 to 49 fathoms around. Banco Benta Palummo,  $2\frac{1}{2}$  miles south-eastward of Capo Miseno, is small with 23 fathoms water, and about 6 cables southward of it is a similar bank with 27 fathoms water; there are depths of from 33 to 47 fathoms in the vicinity of these banks.

*Plan, Pozzuoli bay, on 1400.*

- Golfo di Pozzuoli** extends north-westward  $3\frac{1}{2}$  miles from its entrance between Capo Miseno and Punta di Caraglia,  $4\frac{1}{2}$  miles to the eastward. Its shores are rocky in places and sandy in others, and fronted by shoal banks which extend over 3 cables seaward from its northern part.

The gulf is well sheltered, except from winds between east-south-east, through south, and south-west, but although these winds occasionally cause a considerable surf on the shore the sea is not very heavy.

- Porto Miseno** is three-quarters of a mile northward of Capo Miseno; the entrance, between the spits extending from Punti Terone on the south and Pennata on the north, is about 100 yards wide, with depths of from 4 to 6 fathoms, and during a strong breeze from the south-eastward the sea breaks right across it. The part of the port outside Punta Scarparella, which is situated 3 cables north-westward of Punta Terone, is bordered by banks with shoal water, leaving a space in the middle nearly 2 cables wide with depths of from 4 to 6 fathoms. The inner part of the port is a circular basin, with depths decreasing from 2 fathoms in the entrance. The port formerly included Mare Morto, a lake to the westward, and was then about a mile in extent; they are now separated by a causeway, which is crossed by an iron swing-bridge, supported by three large stone pillars. A

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Pozzuoli bay, on 1400. Var. 7° 20' W.*

wooden pier with a masonry head, near which is a depth of about 10 feet water, extends 130 yards from the southern shore of the inner part of the port; it is furnished with rails and cranes.

Bacoli village lies on the north shore of the port, and between it and Mare Morto is a Roman cistern in good preservation. 5

**Beacons.**—The entrance to the port is marked by two beacons; one, painted black and white in horizontal stripes, is on the end of the spit extending about a cable north-eastward from Punta Terone; the other, painted red, on the end of the spit extending about half a cable south-eastward from Punta Pennata; the latter has been washed away by the sea, but is being rebuilt (1916). 10

**Buoys.**—The end of a spit extending south-westward nearly a cable from Punta Pennata, is marked by a red buoy; a red buoy, marked "Segnale di Secca," lies near the north end of the shoal ground about half a cable north-westward of Punta Scarparella. There is a white mooring buoy, marked "Boa da Ormeggio" in black letters, in the middle of the port, and a similar buoy off the magazines in the inner part. 15

**Directions.**—Enter the port with the yellow Custom house at the head of the port, southward of the canal leading into Mare Morto, bearing 290° true, when it will be in line with the mooring buoy in the middle of the port, which leads into the port and southward of the red buoy at the end of the spit extending south-westward from Punta Pennata. 20 25

The southern part of the port is reserved for military purposes.

**Communication.**—Bacoli has telegraphic communication.

**The coast** from Punta Pennata (*Lat. 40° 47' N., Long. 14° 5' E.*) trends northward  $1\frac{1}{4}$  miles to a point on which is Castello di Baia. Punta Cento Camerelle,  $5\frac{1}{2}$  cables from Punta Pennata, is rugged and rocky; about a cable north-westward of it are the submerged ruins of an ancient Roman house. Punta Cannito,  $3\frac{1}{2}$  cables further northward, is fronted by rocks, some of which are above water; the point is surmounted by a yellow one-storied house. There are several landing piers on the coast between Punta Cento Camerelle and Castello di Baia. The point on which Castello di Baia is situated is steep, and the castle is grey, high, and large. The small Fortino Tenaglia is about half a cable off the point and connected to it by a mole. 30 35

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Pozzuoli bay, on 1400. Var. 7° 20' W.*

**Light.**—A light is exhibited, at 49 feet above high water, from an octagonal tower, 31 feet high and painted red and white in horizontal stripes, on

5 Fortino Tenaglia.

**Baia.**—Between Fortino Tenaglia and Point Epitaph (Punta dell' Epitaffio), 6 cables to the northward, is a bay, round the head of which are the ruins of the ancient city of Baia; the present village has  
10 some importance and commerce; Tempio di Venere, on the shore about half a mile from Fortino Tenaglia, is an octagonal building about 160 feet in diameter, with large arcades and windows. Tempio di Diana, about  $1\frac{1}{2}$  cables  
15 further northward, is an enormous building with a large cupola, only partly preserved. A mole projects from the shore near Tempio di Venere (*Lat. 40° 49' N., Long. 14° 4' E.*); works are in progress (1915) for extending it, and vessels cannot secure to its head at present.

A bank with  $2\frac{1}{2}$  fathoms and less water extends from about one to  $2\frac{1}{2}$  cables off the shore of the bay, and there are some detached patches  
20 with from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  fathoms water, between 2 and 4 cables east-north-eastward of the molehead.

**Anchorage.**—There is anchorage in 16 fathoms water  $2\frac{1}{2}$  cables northward of Fortino Tenaglia; small vessels anchor in 5 fathoms about  $2\frac{1}{2}$  cables eastward of the molehead. There is also anchorage  
25 in 7 fathoms water about  $3\frac{1}{2}$  cables eastward of Point Epitaph, and south-westward of Secca Fumosa. These anchorages are untenable during strong winds from between east-north-east and south-east; the holding ground off Baia westward of a line drawn 0° true from Fortino Tenaglia is untrustworthy, and in 1897, during a south-easterly gale,  
30 30 vessels anchored here were driven on-shore.

**Communication.**—The railway from Naples to Torre Gaveta has a station at Baia. Small steam vessels from Naples call here when unable to communicate at Torre Gaveta. There is telegraphic communication.

35 **The north shore** of Golfo di Pozzuoli from the rocky and rugged Point Epitaph curves eastward a little more than  $1\frac{1}{2}$  miles to Pozzuoli town, forming a bay which extends about half a mile to the northward, and is bordered by a bank with shoal water from about one to 3 cables in width.

40 **Secca Fumosa**, a rocky patch, with 3 feet water, lies half a mile eastward of Point Epitaph. A white house,  $1\frac{1}{2}$  cables inshore of Baia mole, in line with the south side of Tempio di Venere, leads southward of the reef.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*



Fortino Tenaglia lighthouse.

*Plan, Pozzuoli bay, on 1400. Var. 7° 20' W.*

Secca Caruso, rocky and partly above water, extends 3 cables from the shore north-eastward of Secca Fumosa.

**Beacon.**—A truncated hexagonal pyramidal tower, on a base, and painted white and red in vertical stripes, is on Secca Fumosa. A rock, with  $2\frac{3}{4}$  fathoms water, lies three-quarters of a cable south-westward of the beacon. 5

**Buoys.**—A red cylindrical warping buoy is moored in 12 fathoms water about  $1\frac{1}{2}$  cables south-westward of the beacon, and a similar mooring buoy is moored in 7 fathoms water  $1\frac{1}{2}$  cables westward of the beacon. A white buoy is moored in 12 fathoms water, about  $3\frac{1}{2}$  cables south-eastward of the beacon, with four red buoys about  $1\frac{1}{4}$  cables around it, for swinging vessels to adjust compasses. 10

**Lago di Lucrino**, the outlet from which is through the beach about half a mile north-eastward of Point Epitaph, was formerly connected by a canal with Lago Averno, about 3 cables to the northward. These lakes formed Portus Julius of Agrippa. 15

Lago Averno is about half a mile in extent, and has depths of more than 40 fathoms, the water level being about 4 feet above that of the sea. It is surrounded, except in the vicinity of the canal, by wooded hills, and it contains various kinds of fish. The canal and a large part of Lago di Lucrino were filled in by an eruption of Monte Nuovo in 1538. 20

Monte Nuovo, about 4 cables north-eastward of Lago di Lucrino, is an extinct volcano, 460 feet high, the crater of which is about 2 cables in diameter and about 440 feet deep; it is covered with small green wood. 25

Monte Barbaro, one mile north-eastward of it, is a crater about three-quarters of a mile in extent and 1,079 feet high; its slopes are covered with vines, and on the north-west peak is the church of Sant' Angelo della Corvara. About half a mile south-eastward of Monte Barbaro is Monte Cigliano, a small crater. 30

Bambinella, about 7 cables eastward of Lago di Lucrino, is marked by a fallen building on the beach, with some of the ruins in the sea. There is a pier westward of Bambinella, 130 yards long, with a depth of 7 feet at its head, and furnished with rails. 35

**Porto di Pozzuoli** is on the eastern shore of the northern bay of the gulf. Molo Caligoliano (*Lat. 40° 49' N., Long. 14° 7' E.*), constructed partly on ancient stone pillars (wrongly said to have been built by Caligula), extends 2 cables westward from the western side of the town, and shelters the port from southerly winds. The inner end of the mole is connected to the shore by an iron bridge. Molo Armstrong extends about  $1\frac{1}{2}$  cables south-westward from the shore  $4\frac{1}{2}$  cables northward of the root of Molo Caligoliano. 40

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Pozzuoli bay, on 1400. Var. 7° 20' W.*

Westward of the root of Molo Armstrong, a small rocky mole shelters a basin in the middle of which there is a depth of  $1\frac{1}{2}$  fathoms.

**Depths.**—A bank, with less than 3 fathoms water, extends a cable off the north-east shore of the port, whence the depths gradually increase to from  $5\frac{1}{2}$  to 9 fathoms in the entrance between the mole-heads. The depths are irregular less than 30 feet from the wharf of Molo Caligoliano; about 100 yards from its head the depth decreases suddenly from 5 fathoms to 10 feet, and thence to the root of the mole a bank with from 7 to 10 feet extends off it. Some 20 yards from the mole the depths decrease from about  $7\frac{1}{2}$  fathoms at its outer end to 2 fathoms at its inner end.

There is a depth of 26 feet at the head of Molo Armstrong, and the water shoals gradually to  $1\frac{1}{2}$  fathoms near its root.

**Light.**—A light is exhibited at 37 feet above high water, from a circular turret on a square building, 27 feet high, on the head of Molo Caligoliano.



Molo Caligoliano lighthouse.

**Buoys.**—A white iron mooring buoy lies between Molo Armstrong and the head of Molo Caligoliano. There are five warping buoys on the sides of Molo Armstrong, belonging to the Royal Navy.

**Pozzuoli town** (*Lat. 49° 49' N., Long. 14° 7' E.*) is situated on a little promontory, and has about 22,840 inhabitants; it contains a cathedral, and in the vicinity are some thermal springs. The town was overwhelmed by the eruption of Monte Nuovo in 1538.

Sir W. Armstrong, Mitchell, & Company have extensive works, and appliances for constructing heavy artillery. The works, some 50 acres in extent, are on the beach north-westward of the town, with a sea front half a mile long. Molo Armstrong is furnished with rails; there is a crane capable of lifting 160 tons on its head, and smaller ones along it.

The materials used are almost entirely of Italian production, and the operatives, 2,000 to 2,500 in number, are Italians; a village has been built for housing them. The coal imported in 1913 was 46,306 tons.

**Communication.**—There is a railway from Naples (Monte Santo) to Torre Gaveta, with intermediate stations at Fuorigrotta, Bagnoli, Pozzuoli, and Baia. Small steam vessels run daily from Pozzuoli to Procida and Ischia.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

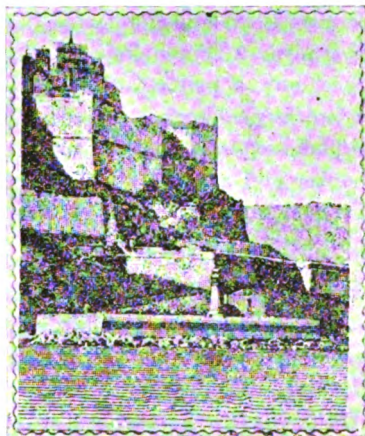
*Plan, Pozzuoli bay, on 1400. Var. 7° 20' W.*

**The coast** from Pozzuoli trends eastward  $1\frac{3}{4}$  miles, and is rocky with steep slopes, to the sandy beach of Bagnoli, which fronts a broad and cultivated valley.

Cratere di Astroni, about  $1\frac{1}{4}$  miles north-eastward of Pozzuoli, the largest and most perfect crater in the district, is about one mile in diameter. 5

**Measured distance.**—A

distance of 6,043 feet, for ascertaining the speed of vessels, has been measured to the southward of Pozzuoli. The running course is a white pillar on the northern bastion of Castello di Baia (*Lat. 40° 49' N., Long. 14° 5' E.*) in line with the lightning conductor of Fortino Tenaglia lighthouse, bearing 270° true. The western limit is marked by a masonry pyramid, painted black and white in chequers, on the shore westward of the root of Molo Armstrong, in line with the lighthouse on Molo Caligoliano, 0° true. The 10



Pillar on Castello di Baia in line with Fortino Tenaglia lighthouse. 15

The eastern limit is marked by a beacon, painted black and white in chequers, situated southward of San Gennaro church, in line with a beacon, painted black and white in chequers, on a little house, situated on the coast about three-quarters of a mile eastward of Pozzuoli, 0° true. The depths on the course are from 18 to 21 fathoms. 20

*Plan, Nisida, on 1728.*

**Bagnoli village**, with numerous bathing establishments, is situated on the beach about 2 miles from Pozzuoli, and at Miranda, south-eastward of it, are two glass works and large metal works. 25

**Piers.**—In front of a large red building between the two glass works, is an iron pier 330 yards long, with 16 feet water near its head, and furnished with rails and electric hoists for rapidly discharging vessels with coal. The coal imported in 1913 was 232,704 tons. 30

A little further southward is a wooden pier, 130 yards long, with 13 feet water near its head; a third pier, about 32 yards long, with 7 feet water at its head, extends from the beach near the Health office. 40

**Buoys.**—There are mooring buoys at the sides and near the head of the iron pier.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*



*Plan, Nisida, on 1728. Var. 7° 20' W.*

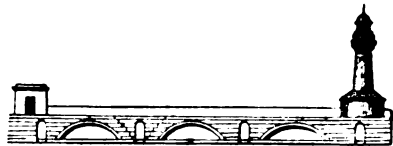
**Anchorage** can be obtained off Bagnoli beach, the 5-fathom line being about 3 cables from it and the water shoaling gradually.

**Isolotto di Nisida** (ancient Neses) (*Lat. 40° 48' N., Long. 14° 10' E.*), about 4 cables west-south-westward of the southern end of Bagnoli beach, is about 3 cables in extent, moderately high, with rocky inaccessible coasts, and cultivated on top; it is connected to the beach by a flat with from three-quarters to  $2\frac{3}{4}$  fathoms water. The islet is an ancient crater, the south-west rim being broken down and leading to Porto Paone. On the north-west summit is an ancient palace, now a prison. Close off the north-west and south-east coasts are two conical rocks; there is deep water around the islet.

A mole extends about 2 cables north-eastward from the islet, and on its outer end are the buildings of the old lazaretto; on its inner end is the new lazaretto; between the old lazaretto and the mainland there is no passage except for boats.

**Porto di Nisida** lies between the lazaretto mole and an irregularly curved mole extending about 200 yards northward from the islet; a quay extends round the shore of the port, a distance of 400 yards. The depths in the port are variable, but the general depth is from  $1\frac{3}{4}$  to  $2\frac{1}{2}$  fathoms, a space in the middle having about  $3\frac{1}{2}$  fathoms water.

**LIGHT.**—A light is exhibited, at 76 feet above high water, from a circular tower over a white circular house, 58 feet high, on the end of the mole extending northward from the islet.



Porto di Nisida; mole lighthouse.

**Buoy.**—A red cylindrical mooring buoy lies about one cable east-north-eastward of the lighthouse in 5 fathoms water.

**Anchorage.**—There is limited anchorage in  $6\frac{1}{2}$  fathoms between the lighthouse and the buoy.

*Plan, Pozzuoli bay, on 1400.*

**Porto Paone** is a small circular basin, having steep rocky sides, with a mouth about 80 yards wide and open south-westward, which is divided into two parts by a rock; the passage south-eastward of the rock is 50 yards wide, with depths of  $5\frac{1}{2}$  fathoms. The depths in the port are from  $2\frac{1}{2}$  to  $1\frac{1}{2}$  fathoms, rocky bottom, and the port is but little visited; it becomes untenable with south-westerly winds.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 26' W.*

**Capo Caraglia (Punta della Badessa or di Coroglio).**

—The coast from the end of the sandy beach abreast Nisida trends south-eastward nearly three-quarters of a mile to Capo Caraglia, and is broken and rocky cliffs about 430 feet high, fronted by rocks some of which are moderately high; on the western fall of Posillipo ridge, three-quarters of a mile northward of the cape, is Santo Strato village, and at the foot of the ridge close to the point is the small red church of Santa Maria del Faro, with a little pointed campanile. Close off the cape are the two Isolotti della Gaiola, on which is a villa, the upper part of which is red and the lower part white; on the coast are enormous ruins both above and below water.

A rocky spit extends about 2 cables south-south-eastward from the islets; some of the rocks are above water.

**Cavallara shoal (Secca della Gaiola),** southward of the spit, a narrow passage with 10 fathoms water lying between, is a rocky bank about  $1\frac{1}{2}$  cables in extent, the head of which is awash; on its outer edge is a depth of  $3\frac{1}{4}$  fathoms.

**Buoy.**—A red truncated conical light-buoy, surmounted by a small framework, is moored in  $11\frac{1}{2}$  fathoms water on the southern side of Cavallara shoal (*Lat. 40° 47' N., Long. 14° 11' E.*); it exhibits a red occulting light every five seconds, eclipse two seconds.

**NAPLES BAY (Baia di Napoli)** (ancient Craten Sinus) extends about 4 miles northward between Capo Caraglia, on the west, and Torre del Greco, south-westward of Mount Vesuvius, on the east.

The depth in the bay shoals from 30 to 66 fathoms in the entrance to 5 fathoms about 2 cables from the shore, except about  $1\frac{1}{4}$  miles north-westward of Portici, where the 5-fathom line is about half a mile off it; the bottom is chiefly mud with patches of sand, rock, and cinders towards the east shore.

**Capo di Posillipo** lies about a mile east-north-eastward of Capo Caraglia, the shore between being much broken and fronted by rocky banks. Scogli della Pietra Salata, a quarter of a mile southward of the cape and  $1\frac{1}{2}$  cables off-shore, are small, low, and dark coloured. There is a dark grey monument, surmounted by a conspicuous cupola, on Capo di Posillipo. Punta Sannazzaro is  $1\frac{1}{2}$  miles further north-eastward, and on it is the church of Santa Maria del Parto. Sunken ruins extend a short distance from the shore between Capo di Posillipo and Punta Sannazzaro, and the shore is backed by the spurs of Monte Posillipo; on their eastern side is the entrance to the famous grotto of Posillipo, which penetrates the hill for 2,244 feet westward, and near which is the tomb of Virgil.

Porto Sannazzaro, northward of the point and within a slightly curved mole which extends about 300 yards north-eastward from it,

*General charts 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var.  $7^{\circ} 20'$  W.*

is small, and has a depth of 13 feet in the middle and near the mole, but there is only a little depth near the shore.

The shore from the port curves eastward  $1\frac{1}{4}$  miles to Forte dell' Ovo, and is bordered by a sea wall; it is known as Riviera di Chiaia, and Rada di Mergellina, off it, affords good summer anchorage, but open to the southward. Large vessels anchor about  $2\frac{1}{2}$  cables off-shore in about 14 fathoms water, sand. There are two landing places along the sea wall, protected by small moles; they cannot be approached during bad weather from seaward.

**Telegraph cable.**—The telegraph cable from Palermo is landed near the eastern end of the sea wall in a masonry watch-house, which is marked "Cavo sottomarino" on its side fronting the sea. Two white openwork ball beacons in line indicate its direction, and anchorage is prohibited in the locality.

*Plan, Port of Naples, on 1596.*

**Forte dell' Ovo** is built on a detached rock, nearly 2 cables long north-west and south-east, which is connected to the shore northward of it by a mole 130 yards long. The fort is a large brown building.

Porto Nuovo di Santa Lucia, on the eastern side of Forte dell' Ovo and the mole northward of it, is enclosed by a rocky mole which runs northward from the south-eastern part of the rock, leaving narrow entrances at each end. The south entrance has a depth of 2 fathoms, but it is partly barred by a rock with 5 feet water; the north entrance has a depth of  $4\frac{1}{2}$  fathoms; in the port are depths of from  $1\frac{1}{2}$  to 5 fathoms and a rock with  $1\frac{1}{2}$  fathoms in the middle. Southerly winds send a considerable swell into the port.

**Rada di Santa Lucia**, between Forte dell' Ovo (*Lat.  $40^{\circ} 50' N.$ , Long.  $14^{\circ} 15' E.$* ) and Molo San Vincenzo, is the usual anchorage for vessels of war, but it is open to southerly winds, and should be left on any appearance of bad weather from seaward. Anchor  $1\frac{1}{2}$  or 2 cables eastward of the north entrance to Porto Nuovo in from 10 to 12 fathoms, sand and good holding ground.

**Buoy.**—A white cylindrical mooring buoy lies about a cable eastward of the north entrance to Porto Nuovo; it is private property and reserved for yachts.

**Porto del Molosiglio**, in the north-west corner of Rada di Santa Lucia, is small and protected by a mole; it is reserved for military purposes.

**PORT OF NAPLES (Porto di Napoli).**—Molo San Vincenzo extends 1,650 yards eastward from about a cable northward of the entrance to Porto del Molosiglio; a metal trellis tower, painted

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port of Naples, on 1596. Var. 7° 20' W.*

red and white in stripes, stands near the head of the mole; 400 yards from the head of the mole is an old lighthouse, and on the inner side 400 yards from its root is a naval dock. Diga Curvilinea commences 2 cables eastward of the head of Molo San Vincenzo, and extends 500 yards north-eastward, whence Diga Rettilinea trends east-south-eastward, parallel to the shore, about 1,100 yards, in depths of 10 fathoms, but the south-east part of this mole is being constructed. 5

The port, within the moles just mentioned, is divided into Avamporto, Porto Militaire, Darsena Militaire, Porto Mercantile, Darsena dei Bacini, and Darsena Vittorio Emanuele II. 10

**Depths.**—The depth in the entrance to the port is 18 fathoms; in Avamporto from 6 to 15 fathoms; in Porto Militaire from 3 to 10 fathoms; in Darsena Militaire from 2 to  $3\frac{1}{2}$  fathoms; in Porto Mercantile from 3 to 5 fathoms; in Darsena dei Bacini 30 feet; and Darsena Vittorio Emanuele 28 feet. 15

**Inner moles.**—Molo Angioino (*Lat. 40° 50' N., Long. 14° 15' E.*) extends eastward about 400 yards from 2 cables northward of the root of Molo San Vincenzo, and from its outer part Molo San Gennaro extends about 350 yards north-eastward. 20

Molo Orientale extends 530 yards southward from the shore eastward of Villa del Popolo, and from its southern end Molo Martello extends 300 yards westward. A mole extends about 500 yards southward from the shore about 250 yards eastward of Molo Orientale, and from its outer end Molo Curvilinea trends south-westward 250 yards and then south-eastward 150 yards. 25

**Avamporto**, northward of the eastern part of Molo San Vincenzo, is used for mooring large vessels. Vessels mooring at Molo San Vincenzo should have 55 fathoms of cable out on their anchors, their sterns being hauled to the mole by hemp hawsers. The outer portion of Molo San Vincenzo is used for vessels awaiting berths in the inner ports; vessels with inflammables are moored off the old lighthouse. Four berths off Molo San Vincenzo are reserved for foreign vessels of war; they are 60 yards apart, the outside one being 300 yards westward of the old lighthouse. The positions are marked on the mole wall by a black line with the letters A., B., C., D., respectively, in black on a white ground, over it; each berth is also marked by two beacons surmounted by triangles, which in line give the position for berthing a vessel at right angles to the mole; A. is the inside berth. Vessels moor with anchors ahead and their sterns hauled toward the mole, but not nearer than 60 yards to it; there are depths of from 7 to 11 fathoms 50 yards from the mole. The naval authorities will, on request, supply large hemp stern hawsers, and these should always be used in addition to the vessel's own hawsers. In winter there should be two anchors down, one about 2 points on each bow when moored, 35 40 45

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port of Naples, on 1596. Var. 7° 20' W..*

with about 100 fathoms of cable on each, as the squalls are violent from the northward, and there should be four hawsers astern as south-easterly winds send in a heavy sea. Letter A. berth should not be  
5 used by a vessel over 460 feet in length, as a longer vessel with over 60 fathoms of cable out would foul vessels lying off Molo San Gennaro (*Lat. 40° 50' N., Long. 14° 16' E.*). The large glass dome of Galleria Umberto, which is electrically lit at night, bearing 282° true, is a good mark for anchoring in vessels of moderate length when  
10 mooring at the berths on the north side of Molo San Vincenzo, but as there are two other domes in the vicinity caution is necessary.

A vessel of war should acquaint the consul of an intended visit to the port in order that a berth may be reserved.

Westward of letter A. berth is a guardship flying the Admiral's  
15 flag, and six berths for vessels of the Italian navy. No vessel is allowed inside the guardship.

Vessels moor off Molo San Gennaro, with their heads to the south-east and their sterns hauled towards the mole by hawsers; there should be about 60 fathoms of cable out on the anchors.

20 **Porto Militaire** lies between the inner part of Molo San Vincenzo and Molo Angioino, Calata Beverello being on its western side; it is used by small Italian vessels of war.

**Darsena Militaire**, on the south-west side of Porto Militaire, is entered by a channel, with a swing bridge over it, between projec-  
25 tions from Molo San Vincenzo and Calata Beverello, in which there is a depth of 3½ fathoms. It is used by small vessels of war fitting out or under repair.

**Porto Mercantile** consists of Porto Vecchio, on the west; Porto Nuovo, in the middle; and Porto Orientale, on the east. There are  
30 several warping buoys in the port.

Porto Vecchio lies between Molo San Gennaro and Calata Piliero, Molo Angioino being on its south-western side, and Molo Immacolatella projecting about 100 yards south-eastward from the north-eastern end of Calata Piliero. There is a depth of 26 feet alongside the wharf  
35 on the north side of Molo San Gennaro, and on the mole, which is connected to the railway, are bonded warehouses. Near Molo Immacolatella is a channel crossed by a swing bridge, giving access to Porto Piccolo, a small basin, with the Custom house for general cargo on its south-western side, which is brought in by lighters. The Health  
40 office is on Molo Immacolatella.

Porto Nuovo lies between Molo Immacolatella and Molo Trapezoidale, which extends about 250 yards southward from the shore 2½ cables north-eastward, and on which is the Port office. Calata delle Porta di Massa, on the north-west side of the port, is generally  
45 used by sailing vessels. The calate on the western side of Molo Trapezoidale are used by transatlantic emigrant vessels.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port of Naples, on 1596. Var. 7° 20' W.*

Porto Orientale lies between Molo Trapezoidale and Molo Orientale; on its northern side is Calata Villa del Popolo, and on the southern side Molo Martello. The calata on the eastern side of Molo Trapezoidale is reserved for the steam vessels of the Navigazione 5  
Generale Italiana.

There are grain elevators on Calata Villa del Popolo, and coal sheds on Molo Orientale alongside which there are six berths for discharging colliers; the railway runs along the calata and mole. A detached 10  
landing stage of reinforced concrete extends about 100 yards southward from 30 yards off Calata Villa del Popolo and about 170 yards eastward of Molo Trapezoidale.

**Darsena dei Bacini**, on the eastern side of Molo Orientale, is about a cable wide, its entrance, 70 yards wide, lying between Molo Martello and Molo Curvilinea; it has been dredged to a depth of 15  
30 feet, and at its head are two dry docks, two slipways, and ship-building yards. Railways run alongside the docks. A red buoy lies in the middle of the basin.

**Darsena Vittorio Emanuele II.**, eastward of Darsena dei Bacini, is about 500 yards in length north and south and 400 yards 20  
wide; its entrance, between two moles on its southern side, is about 60 yards wide. The basin has been dredged to a depth of 28 feet, and 32 feet alongside the wharf. There are coal sheds on the eastern side of the basin, and a timber wharf on the northern side.

Fiume Sebeto flows into the head of the basin. 25

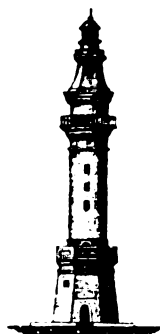
**Harbour works.**—Two moles are to be constructed, one about 2 cables and the other 4 cables eastward of Molo Vittorio Emanuele II., in order to make two new basins.

**LIGHTS.**—**Molo San Vincenzo.**—A light is exhibited, at 30  
31 feet above high water, from an iron column and hut, 26 feet high, on the eastern end of Molo San Vincenzo (*Lat. 40° 50' N., Long. 14° 16' E.*).

**Diga Curvilinea.**—A light is exhibited, at 35  
33 feet above high water, from a black iron trellis framework, on the south-west end of Diga Curvilinea.

**Molo Angioino.**—A light is exhibited, at 40  
160 feet above high water, from a circular stone tower on a red octagonal base, 141 feet high, on the eastern part of Molo Angioino, near the angle of that mole and Molo San Gennaro.

**Molo San Gennaro.**—A light is exhibited, at 28 feet above high water, from a white hut with an iron crane, 18 feet high, on the eastern corner of Molo San Gennaro.



Molo Angioino  
lighthouse.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port of Naples, on 1596. Var. 7° 20' W.*

**Molo Martello.**—A light is exhibited, at 26 feet above high water, from a turret, painted black and white in horizontal stripes, and over a building, 18 feet high, on the head of Molo Martello.

- 5 **Landing stage.**—A light is exhibited, at 15 feet above high water, from a masonry pillar on each corner of the southern end of the landing stage in Porto Orientale.

- Molo Curvilinea.**—A light is exhibited, at 30 feet above high water, from a turret, 26 feet high, and painted black and white in vertical stripes, on the head of Molo Curvilinea.

**Darsena Vittorio Emanuele II.**—A light is exhibited, at 23 feet above high water, from a metal turret, 14 feet high, and painted red and white in horizontal stripes, on the head of the mole on the western side of the entrance to the basin.

- 15 A light is exhibited, at 23 feet above high water, from a metal turret, 14 feet high, and painted black and white in vertical stripes, on the head of the mole on the eastern side of the entrance to the basin.

**Approach.**—The following are good marks:—

- Convento dei Camaldoli, on a hill 1,587 feet high, about  $1\frac{1}{2}$  miles north-westward of the city, white and conspicuous. Collina di Capodimonte (*Lat. 40° 52' N., Long. 14° 15' E.*), surmounted by a palace, northward of the city, and the Astronomical Observatory near it, which can be distinguished from seaward by its white cupolas. Collina di Pizzofalcone, westward of the city, with large barracks on it, which extend to a short distance from the sea. Palazzo Reale and Castello Nuovo, near the root of Molo San Vincenzo. Two high chimneys at the electric power station westward of the Port office, and the sharp steeple of Chiesa Carmine, northward of Porto Orientale.

- 30 **Pilots.**—The old lighthouse on Molo San Vincenzo is now the pilots' watch-house, and pilots board vessels flying the pilot signal within about 2 miles from the end of Molo San Vincenzo. *See page 19.*

- The pilots are organised in one body for the service of the Port of Naples and Golfo and Porto di Pozzuoli. The pilotage charge is 9 centesimi per ton up to 1,000 tons, 5 centesimi per ton from 1,000 to 2,000 tons, 3 centesimi per ton 2,000 tons upwards, with a minimum of 32 lire and a maximum of 160 lire. The charge for shifting berth in the port is a quarter of the above.

- 40 The pilots take vessels to a distance not less than 2 miles from the head of Molo San Vincenzo, and should take vessels to Pozzuoli at an increase of one-quarter of the charge.

**Tides.**—It is high water, full and change, in the Port of Naples, at IXh. 12m.; springs rise 8 inches, neaps 4 inches.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*





No. 954.—PORT OF NAPLES—ALTERATION IN LIGHTING.

1. Curvilinear mole light:

*Position.*—On the extremity of the mole.  
Lat.  $40^{\circ} 50\frac{1}{4}'$  N., long.  $14^{\circ} 16\frac{1}{4}'$  E.

*New abridged description.*—Lt. Occ., Green ev.  $\frac{1}{4}$  sec., 5 m.

*Details.*—The period of this occulting green light has been altered from ten seconds to four seconds, thus:—

Light,	eclipse.
<u>2 secs.</u>	<u>2 secs.</u>

*Remarks.*—The visibility of this light is 5 miles; the other characteristics remain unchanged.

2. Martello mole light:

*Position.*—On the extremity of the mole.

*Details.*—The period of this occulting green light has been altered from thirty seconds to five seconds, thus:—

Light,	eclipse.
<u>4 secs.</u>	<u>1 sec.</u>

*Remarks.*—The visibility of this light is 5 miles; the other characteristics remain unchanged.

Chart No. 1596.

Med. 2, p. 260.

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(14376.) Wt. 11517-953. 2000. 6/17. Wy. & S., Ltd.

*Plan, Port of Naples, on 1596. Var. 7° 20' W.*

**Sea level.**—The level of the sea is influenced by the wind, a considerable rise above the normal being caused by strong south-westerly winds.

**Current.**—South-westerly gales send water into the head of the gulf, and a strong current then sets out of the port. 5

**Storm signals** are exhibited from a flagstaff at Molo Angioino lighthouse (*Lat. 40° 50' N., Long. 14° 16' E.*). See page 17.

**Port regulations.**—To facilitate the arrival and departure of the State postal steamers, and those of the Naples-Tunis line, in or from Porto Orientale, between Molo Trapezoidale and Molo Martello, from 30 minutes before to 30 minutes after the hour fixed in the official time-table for the arrival and departure of the vessels referred to, steam and sailing vessels arriving and departing must so regulate their movements as not to cause any obstruction to the postal steamers referred to. Vessels infringing this regulation are liable to a penalty, and are responsible for any consequent damages. 10 15

**Regulations for boats.**—Vessels of war at Molo San Vincenzo have permission to carry on communication with the quay in the north-west part of the arsenal, except from 1h. 0m. a.m. to 6h. 0m. a.m., when the gates are closed. Shore boats from the Commercial port are not allowed to enter the Military port during those hours, except by permission from the guardship, and then, only to her, the further forwarding to proper vessels being effected from the guardship. 20

**Landing.**—The best landing place is at the east gate of Castello Nuovo, that at the Health office being usually crowded with boats and shipping, and bad to approach. 25

**The city** of Naples (Italian, Napoli; and ancient Neapolis) was originally colonised from the Greek city Cumæ. It rises from the head of the bay in the form of an amphitheatre, divided into two unequal parts by Collina di San Martino, on which is Castello di Sant' Elmo, the old and eastern part being the larger. Northward of the city is Collina di Capodimonte; on the west is Collina di Pizzofalcone, which approaches near the sea, and suburbs extend far inland; on the east is the fertile plain of Campania. The shore is fronted by terraced gardens and long quays. 30 35

The city is intersected by several long streets, one of which, Via Roma (formerly Toledo), runs about  $1\frac{1}{2}$  miles northward from the piazza facing the royal palace, and is the principal business thoroughfare. The public buildings include the cathedral, palace, exchange, record office, museum, naval and military colleges, Galleria Umberto, and the theatre of San Carlo. 40

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port of Naples, on 1596. Var. 7° 20' W.*

There is a royal dockyard, an arsenal, and an ordnance foundry, besides shipbuilding yards.

The population was 723,208 in 1911.

- 5 A British Consul-General and two Vice-Consuls are stationed at Naples.

**Trade.**—At Naples there are iron and glass works, tanneries, manufactories of soap, chocolate, gloves, hats, earthenware, and fancy goods. The exports are wine, hemp, chemicals, medicine, perfumery, 10 silk, cotton, and woollen manufactures, timber, paper, books, live animals and animal produce, grain, drugs, leather goods, metals, stone, earthenware, and glass. The imports are dry goods, coal, cotton, dyes, dried fish, machinery, iron, cereals, drugs, wine, chemicals, timber, stone, earthenware, and glass.

- 15 **Shipping.**—In 1913, 3,807 steam vessels, of 8,961,939 tons, entered the Port of Naples; of these 545 vessels, of 2,111,138 tons, were British.

**Coal.**—In 1913, 1,004,888 tons of coal were imported; about 100,000 tons are usually in stock. Coaling is done from lighters, of 20 which some 25 are kept loaded, and about 200 others of from 50 to 500 tons are available. About 120 tons can be put on board per hour, and one firm will ship 4,000 tons in 24 hours.

**Supplies.**—Provisions are plentiful. Water can be procured from stand pipes on all the quays. Vessels of war can be supplied 25 from the naval arsenal by tank vessel.

**Repairs** of any kind can be executed by Messrs. C. & T. T. Pattison, or by the mechanical works of Miani & Silvestri (ex Hawthorn Guppy).

**Docks.**—There is a Government dry dock on the inner side of 30 Molo San Vincenzo (*Lat. 40° 50' N., Long. 14° 16' E.*), and two floating docks; there are two private docks at the north end of Darsena dei Bacini. For particulars, see Appendix I.

**Time signal.**—A ball, hoisted five minutes before the signal, at a flagstaff on Maschio Angioino (Castello Nuovo), 65 feet above high 35 water, is dropped, electrically, from the local Hydrographic office, at noon standard time, or 23h. 00m. 00s. Greenwich mean time.

Should the signal fail, or be inaccurate, the ball will be hoisted half way up 4½ minutes, and lowered 15 minutes, after the time of the signal, and the signal will be made at 1h. 00m. 00s. standard time. 40 Should the signal again fail the ball will be hoisted and lowered as before, but no further signal will be made.

A gun is fired at mid-day from Castello di Sant' Elmo, but it should not be used as a time signal.

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port of Naples, on 1596. Var. 7° 20' W.*

**Sailors' rest**, established in 1883, gives food and lodging to British seamen stopping in the city under the care of the Consulate at a charge of 3 lire daily. Other seamen, of any nationality, can use the reading rooms free. 5

**Hospitals.**—The naval hospital of Piedigrotta has 500 beds, and the military hospital of La Trinità about 600 beds.

Pellegrini hospital, with 130 beds, receives cases of wounds, contusions, and poisons without regard to nationality, and gratuitously.

There is a hospital for incurables with 700 beds. 10

Cotugno hospital has 200 beds for severe cases, at a daily charge for strangers of 1½ lire.

Loretto hospital has 300 beds for cases of boils, asphyxia, and poison; Le Pace hospital, 84 beds for severe cases; and Gesù e Maria hospital, 50 beds for special surgical cases. 15

**Communication.**—Naples has railway communication with Rome, Brindisi, Taranto, Reggio, and the general railway systems, the principal railway station being on the eastern side of the city. There are electric trams. The vessels of numerous steamship companies call here. The central telegraph office is always open. 20

**Wireless telegraph.**—A wireless telegraph station near Molo Angioino lighthouse (*Lat. 40° 50' N., Long. 14° 16' E.*) is always open to the public; the call letters are I.C.N.

*Plan 1728, Gulf of Naples.*

**The shore.**—The large houses of Granili, now barracks, about 25 4 cables eastward of Molo Vittorio Emanuele II., are noticeable from seaward. The shore between Granili and Granatello, 3 miles south-eastward, is a beach of dark volcanic sand, the 5-fathom line being distant from 2 to 5 cables; the country inland is low. Several small piers extend off the shore; the ship building works of Pattison, with 30 several chimneys, lie between Granili and San Giovanni a Teduccio, about one mile south-eastward, the campanile of which has a pyramidal spire. The buildings of Petrarsa foundry, on a small projection about one mile south-eastward of San Giovanni a Teduccio, are conspicuous. 35

**Buoys.**—Two cylindrical mooring buoys are placed on each side of a pier extending about 200 yards off the shore half a mile north-westward of San Giovanni a Teduccio.

**Porto di Granatello** is the small port of Portici and Resina, two towns built at the base of Vesuvius, the first about half a mile 40 northward, and the second the same distance eastward of Granatello; Resina is built on the site of ancient Herculaneum, and close north-

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

ward is Santa Maria di Pugliano, with a square reddish campanile, which is conspicuous from seaward.

A mole extends about 200 yards north-westward from the south shore of the port, and shelters the port from the south-westward; an enrockment extends about 100 yards northward from the molehead. There are depths of about 3 fathoms in the entrance, and from 2 to 3 fathoms in the port, which is generally much encumbered by fishing and other small craft.

**Light.**—A light is exhibited, at 39 feet above high water, from an iron standard on a little red building with a circular base, 21 feet high, on the molehead (*Lat. 40° 48' N., Long. 14° 20' E.*).

**Buoy.**—A red cylindrical warping buoy lies in the middle of the port.

**Mount Vesuvius** (Monte Vesuvio), about 4 miles eastward of Granatello, is surrounded, except towards the gulf, by the plain of Campania. The mountain has two summits, Monte di Somma, on the north side, 3,630 feet high, and Mount Vesuvius proper, about a mile southward of it, the cone of the active crater; the summits are separated by Atrio del Cavallo, a deep semicircular valley, but on the west and south-west the fall is continuous though uneven. The height of the active cone has varied considerably lately; it is now about 4,012 feet high. On the north-west side at a height of 1,952 feet are a hermitage and observatory, and around the base of the mountain on all sides are populous villages, the land being cultivated and in places wooded.

The first recorded eruption of Vesuvius was in 79 A.D., when the cities of Herculaneum, Pompeii, and Stabia were overwhelmed and buried beneath scorize, lava, mud, and ashes. From that time, at various intervals, there have been other eruptions, the two last of importance occurring in 1872 and 1906.

There is a tramway service from Naples to Santa Maria di Pugliano, whence an electric railway runs to the funicular line which ascends the cone above the observatory.

**The shore** from Porto di Granatello trends south-eastward 2 miles to Porto di Torre del Greco; Scoglio di Scala, a rocky bank, some of the rocks being above water, but with a general depth of 3 feet, extends about 2 cables from the shore,  $1\frac{1}{4}$  miles from Porto di Granatello. Near Torre del Greco is a noticeable masonry arched viaduct.

*Plan, Port Torre del Greco, on 1596.*

**Porto di Torre del Greco**, or Porto Calastro, from an old fort of that name on the shore at the north end of the port, lies within a slightly curved mole which extends about 560 yards southward from

*General charts 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port Torre del Greco, on 1596. Var.  $7^{\circ} 20'$  W.*

near the fort; the port is about 2 cables long north and south, and  $1\frac{1}{2}$  cables wide, the entrance between the molehead and the mole constructing from Punta Scarpetta being about one cable wide, and there are depths of from one to  $4\frac{3}{4}$  fathoms in the port. 5

A mole, to extend about 65 yards south-westward from near Punta Scarpetta, on the eastern side of the entrance, is being constructed.

The port is sheltered, except from south-easterly and southerly winds, which, when strong, render it untenable.

Torre del Greco town has about 35,328 inhabitants, many of whom are seamen and coral and sponge fishers working on the coast of Africa, and on the banks in the channel between Sicily and Tunis. 10

*Plan 1728, Gulf of Naples.*

**The shore** from Torre del Greco (*Lat.  $40^{\circ} 47'$  N., Long.  $14^{\circ} 22'$  E.*) trends south-eastward 2 miles to Punta della Madonna Bruna, and is volcanic rock. Torre Bassano, square with cornices, stands in front of a superstructure, on a little rocky point about a mile from Torre del Greco. About a mile east-north-eastward of Torre Bassano is the white convent of Camaldoli de la Torre on a green hill 608 feet high. 15 20

*Plan, Castellamare bay, on 1400.*

**Punta della Madonna Bruna** and Punta dell' Inglese, 6 cables east-south-eastward of it, are fronted by rocks. Capo Bruno is 3 cables further east-south-eastward, and on it is Torre Scassata, which is conspicuous. About 2 cables north-westward of Capo Bruno is a pier where small craft load with stone from a quarry near it. 25

The shore from Capo Bruno turns eastward  $1\frac{1}{4}$  miles to the commencement of a sandy beach where is Torre Annunziata town.

*Plan, Port Torre Annunziata, on 1400.*

**Porto di Torre Annunziata** is enclosed by two moles; Moli di Ponente extends southward in three connected sections about 4 cables from the western end of the town, and Molo di Levante, or Molo del Carbone, extends south-westward  $1\frac{1}{2}$  cables from the shore, 3 cables eastward of the root of Molo di Ponente. The entrance between the moleheads is 2 cables wide, but the navigable channel is reduced to a width of  $1\frac{1}{4}$  cables by a shoal bank extending off the shore south-eastward of Molo di Levante. 30 35

**Depths.**—There are depths of from  $3\frac{1}{2}$  to 5 fathoms in the entrance, and of  $3\frac{3}{4}$  to  $4\frac{1}{2}$  fathoms in the area lying between the southern parts of Molo di Ponente and the storehouses, quays, and Molo di Levante, the depths decreasing towards the head of the port. 40

**LIGHTS.**—A light is exhibited, at 39 feet above high water, from a red circular tower on a red circular building, 33 feet high, on the head of Molo di Ponente.

*General charts 1400, 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port Torre Annunziata, on 1400. Var. 7° 20' W.*

A light is exhibited, at 29 feet above high water, from a crane on a black and white masonry hut on the head of Molo di Levante.

- Buoy.**—A black conical buoy, surmounted by a cone, is moored, in  
5 3½ fathoms water, nearly a cable southward of the head of Molo di Levante; the buoy is left on the starboard hand entering.

**Anchorage.**—There is temporary fine weather anchorage in spring and summer, in 8 fathoms water, about 1½ cables south-westward from the head of Molo di Ponente.

- 10 Vessels mooring in the port at Molo di Ponente and the outer part of Molo di Levante should drop their anchors well apart, and have plenty of cable out as the holding ground is only moderate, and a heavy swell sets into the port with south-easterly and southerly winds.

- 15 **Weather forecast.**—There is said to be a remarkable agitation of the water in the port an hour or two before the commencement of south-easterly winds.

- Pilots.**—There is a pilotage service, which extends one mile from the entrance to the port. The pilotage charges are 6 centesimi per  
20 net ton, with a minimum of 20 lire and a maximum of 125 lire. When the pilot is retained on board from sunset to dawn he is entitled to an additional charge of 10 lire, and to a further charge of 20 lire if he goes with his boat to the vessel's moorings.

- The town** of Torre Annunziata (*Lat. 40° 45' N., Long. 14° 27' E.*)  
25 stands at the head of the port, and the conspicuous grey cupola of Carmine rises on the slopes behind; below the cupola is a railway viaduct; the grey cupola of Chiesa dell' Annunziata, a little to the south-eastward, is smaller. The Campanile di Bosco Tre Case, about one mile northward of the town, is white, pointed, and conspicuous.  
30 The principal industries are flour milling, manufacture of alimentary paste, patent fuel, and small arms; the iron and steel foundries of Vesuvio are in the vicinity. The population is about 28,084.

- Supplies.**—Provisions can be obtained, and water is taken into the town by an aqueduct from the sources of Fiume Sarno. Drinking  
35 water is supplied to shipping from floating tanks.

**Coal.**—In 1913, 271,402 tons of coal were imported; about 42,000 tons are usually in stock; it is brought off in lighters, of which there are 95 of 350 tons, and 1,000 tons can be put on board in 24 hours.

- Hospital.**—There is a civil hospital, with 36 beds, which receives  
40 strangers at a daily rate, paid fortnightly in advance, of 2 lire daily in medical and 2½ lire in surgical cases.

**Communication.**—There is railway and telegraphic communication.

*General charts 1400, 1728, 1841, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Castellamare bay, on 1400.*

**Pompeii.**—About  $1\frac{1}{2}$  miles eastward of Torre Annunziata are the ruins of the ancient city of Pompeii, which was buried in lava and ashes during the eruption of Vesuvius in 79 A.D.

**The shore** from Torre Annunziata trends south-south-eastward, and is a sandy beach, 4 miles to Castellamare di Stabia; about midway is the mouth of Fiume Sarno, a quarter of a mile off which is Scoglio Revigliano (*Lat.  $40^{\circ} 44' N.$ , Long.  $14^{\circ} 28' E.$* ), surmounted by a castle in ruins with a large square tower. The railway skirts the shore, on which there are ironworks and factories. The 10-fathom contour line is about half a mile off the beach.

*Plan, Port Castellamare, on 1400.*

**PORTO DI CASTELLAMARE DI STABIA.**—**Porto Mercantile**, in the south-east corner of Baia di Castellamare, is sheltered from the westward by Molo di Ponente, which extends 220 yards northward and then 175 yards north-eastward from a projecting point, on which are the Royal dockyard and building slips.

About  $3\frac{1}{2}$  cables eastward from the root of Molo di Ponente, Molo di Levante extends nearly 200 yards north-westward from the shore; it is proposed to extend it 150 yards to the westward. A rocky mole extends about 200 yards north-eastward from the centre of Molo di Levante.

About 250 yards north-eastward of the root of Molo di Levante, a mole projects about 150 yards north-north-westward; it is being extended 75 yards.

The entrance, between the heads of Moli di Ponente and di Levante, is at present 2 cables wide with depths of from  $4\frac{1}{2}$  to 9 fathoms. The depths in the port are from 3 to 9 fathoms.

Spacious quays extend along the shore between Molo di Ponente and Molo di Levante, and the quays and the eastern side of Molo di Ponente are furnished with bollards.

**LIGHTS.**—A light is exhibited, at 107 feet above high water, from a red tower, 71 feet high, on an old battery, now painted red and used as the keeper's dwelling, situated near the root of Molo di Ponente.

A light is exhibited, at 30 feet above high water, from a red iron crane on a white square masonry hut, on the head of Molo di Ponente.

A light is exhibited, at 27 feet above high water, from a metal trellis turret, painted red and white in stripes, 21 feet high, on the head of Molo di Levante.

A light is exhibited from the Captain of the Port's wharf, and also from the root of Molo Quartuccio.

*General charts 1400, 1728, 1842, 676, 2158a and b, 449.*



Porto di Castellamare  
lighthouse on battery.



*Plan, Port Castellamare, on 1400. Var. 7° 20' W.*

**Buoys.**—A red cylindrical mooring buoy lies about  $1\frac{1}{2}$  cables north-eastward of the head of Molo di Ponente, and a similar buoy lies about the same distance south-eastward of the head of the mole.

- 5 The works in progress for extending the north-eastern mole are marked by two red buoys on each side.

**Anchorage.**—There is open anchorage about  $1\frac{1}{2}$  cables northward of the head of Molo di Ponente in 9 fathoms, sand, but it becomes untenable with south-westerly winds.

- 10 **Dredging** is in progress in the port; when the dredger is depositing spoil the moorings are attached to buoys, which should not be closely approached.

- Porto Militare** lies between Molo di Ponente of Porto Mercantile and a mole which extends about 280 yards northward from the shore  $3\frac{1}{2}$  cables south-westward from its root. The port, which is completely open to the northward, has general depths of from  $3\frac{1}{4}$  to one fathom.
- 15

- Buoys.**—In the western part of Porto Militare are five white buoys used for swinging torpedo vessels to adjust compasses. A mooring buoy lies in 11 fathoms water in the middle of the entrance to the port.
- 20

- Pilots.**—There is a pilot service at Porto di Castellamare, and vessels are boarded within a distance of one mile from the lighthouse on Molo di Ponente of Porto Mercantile (*Lat. 40° 42' N.,*  
25 *Long. 14° 28' E.*).

- The pilotage charge is 6 centesimi per net ton, with a minimum of 20 lire and a maximum of 100 lire. There is an extra charge of 10 lire when the pilot is retained on board between one hour after sunset and dawn, and one of 20 lire if the pilot's boat is used in mooring the vessel.
- 30

- Winds.**—Strong south-easterly winds are very troublesome to vessels moored at Molo di Ponente, Porto Mercantile; these winds are generally of short duration, and shift in a violent squall, with rain, to the south-west. South-westerly winds send a heavy sea into the gulf, and much swell into the port. Northerly winds are fresh in winter, especially when there is snow on the mountains, and, though they blow directly into the mouth of the port, they cause but little sea, and are not of long duration. In winter east-north-easterly winds are frequent, and sometimes of considerable force.
- 35

- Southerly winds cause a rise in the level of the water in the port, and northerly winds a fall. Mount Vesuvius is completely covered with cloud during south-east winds, and clears when the wind shifts to the westward and north-westward.
- 40

*General charts 1400, 1728, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port Castellamare, on 1400. Var. 7° 20' W.*

**The town** of Castellamare (*Lat. 40° 42' N., Long. 14° 29' E.*), at the southern end of the beach extending 4 miles from Torre Annunziata, is built on the ruins of the ancient town Stabia, which was destroyed at the same time as Pompeii; it is situated on the slopes of hills, covered with thick vegetation. The reddish buildings of the dockyard are conspicuous. Near the sea close westward of Porto Militaire is the light yellow campanile of Santa Maria di Puzzono (Pozzono), an octagonal steeple with a square base. 5

South-eastward of the town is Monte Coppola, the arid and rocky summit of Monte Pendolo, surmounted by a cross. 10

The principal industries are the manufacture of alcohol and mineral oil, alimentary paste and soap, and ship-building. There are mineral and sulphur springs in the vicinity. The population is about 36,700.

A British Vice-Consul is stationed here. 15

**Supplies.**—Provisions can be obtained in moderate quantities. Water, from springs on the south-western shore of Porto Mercantile, is supplied to shipping by tank boats.

**Coal.**—The commercial stock of coal is usually about 600 tons. There is no coal wharf; there are 15 lighters and two tugs. 20

**Hospital.**—The civil hospital has 30 beds, of which 18 are for men; strangers are received at a daily rate of 1½ lire, payable fortnightly in advance.

**Communication.**—There is a railway to Naples, and an electric tramway to Sorrento; also telegraphic communication. 25

*Plan, Castellamare bay, on 1400.*

**Capo d'Orlando** is 1½ miles westward of Porto Militaire; the coast westward to Porticarello, distant 6 cables, is a beach; it then becomes higher, rocky, and backed by green hills, with mountains inland. 30

Secca Santa Croce, about 4 cables westward of the cape, is small, with 6 fathoms water, and from 22 to 37 fathoms around.

*Plan 1728, Gulf of Naples.*

**Torre Sergia**, square, but not conspicuous, is on a rocky point, about 4 cables south-westward of Capo d'Orlando. The mineral and sea bathing establishments about a quarter of a mile southward of the tower are noticeable. 35

The convent of San Francesco, nearly half a mile southward of Torre Sergia, is 935 feet above high water, and isolated in the midst of woods; its cupola and campanile are white and conspicuous. 40

**La Marina di Vico Equense** is a little sandy beach on the shore of a little bight, about three-quarters of a mile southward of Torre Sergia. On its western side is a small high point, southward of

*General charts 1400, 1728, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

which is Vico village, situated in the midst of woods and olives, with a fine battlemented castle at its southern end.

Scoglio Santa Margherita, about half a cable northward of the point  
5 westward of the Marina, is rather high.

West of Vico village is a sandy beach, within which is the valley of Rio d'Arco; the head of the valley is crossed by a large bridge on arches, which carries the tramway to Sorrento.

**Punta di Scutolo.**—The headland of Punta di Scutolo, at the  
10 western end of the beach, is rocky and high; Punta Gradelle, its western extreme, is surmounted by the church of Santa Maria delle Grazie, 705 feet above high water, red, and conspicuous.

**La Marina d'Alimari (Alinuri),** on a beach immediately southward of the high land of Punta Gradelle, is marked by a lime-  
15 kiln, two cylindrical towers, and the electric tramway station.

**Il Porticciuolo di Meta,** a little further southward, is sheltered from the northward by a curved mole, westward of which, a spit, with  $1\frac{1}{2}$  feet water, extends seaward 150 yards; the port is only  
20 suitable for boats. The high rocky point southward of the port is bordered by a shoal bank.

**Punta di San Francesco,** nearly a mile south-westward of Meta, is high, rocky, covered with vegetation, principally pine trees, and surmounted by a long wall and a quadrangular battlemented turret.

25 **The shore** from Punta di San Francesco trends west-south-westward three-quarters of a mile to Porto di Sorrento; it is rocky, and rises almost vertically to a height of about 165 feet, the land within being a high plain extending to the base of the mountains.

*Plan, Port Sorrento, on 1596.*

30 **Porto di Sorrento** (*Lat. 40° 37' N., Long. 14° 23' E.*) is protected by a mole which extends northward and north-eastward about 150 yards from the shore. Vessels of 10 feet and less draught moor eastward of the mole sheltered from westerly winds, but with strong winds between north-west and south, there is a high swell, which causes  
35 much strain on the moorings.

**Light.**—A light is exhibited from a pole on the molehead.

**Anchorage.**—In the fine season there is open anchorage off the shore westward of the port; in winter it is preferable to anchor northward of the port, in about 22 fathoms water.

40 **Sorrento** (ancient Syrentum) town is situated on the side of a hill surrounded by mediæval walls. Its industries are inland wood-work, and the manufacture of silk stockings, scarfs, and ribbons. There are many ancient Roman ruins in the town and its vicinity.

The population was 8,832 in 1911.

*General charts 1728, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port Sorrento, on 1596. Var.  $7^{\circ} 20' W$ .*

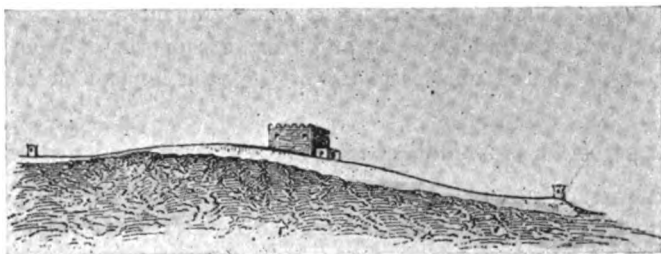
**Supplies.**—Provisions can be obtained, and there is a constant flow of water from a fountain about 50 yards from the south shore of the port.

**Communication.**—Small steam vessels between Naples and Capri call twice daily each way. There is an electric tramway to Castellamare, and telegraphic communication. 5

*Plan 1728, Gulf of Naples.*

**The shore** from Porto di Sorrento trends westward and north-westward  $1\frac{1}{2}$  miles to Capo di Sorrento (*Lat.  $40^{\circ} 38' N.$ , Long.  $14^{\circ} 21' E.$* ); 10 it is not very high, but there are many ancient caves which were excavated in the rocks. Capo di Sorrento is a rocky projection surmounted by an old tower and a temple.

**Measured distance.**—A distance of 119,068 feet has been measured, for ascertaining the speed of vessels, westward of Capo di 15



Casa Cosenza on Monte Sant' Angelo.



Sant' Angelo a Tre Pizzi.



Scoglio Vervecce.



Torre Cala.



Monte Epomeo, Ischia.

*General charts 1728, 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

- Sorrento. The running line is Casa Cosenza, on Monte Sant' Angelo, in line with an old telegraph post on Monte Sant' Angelo a Tre Pizzi, 90° true. The western limit is Punta Sant' Angelo, Ischia, in line with Monte Epomeo, Ischia, 3° true; and the eastern limit is Scoglio Vervece in line with Torre Cala, 185° true. There are depths of from 412 to 66 fathoms on the course. Views on page 391.

- Capo di Massa** (*Lat. 40° 38' N., Long. 14° 20' E.*), about half a mile south-westward of Capo di Sorrento, is the north extreme of a small high steep rocky projection. Torre di Massa, on the cape, is old, large, and square.

The coast from Capo di Massa trends southward  $3\frac{1}{2}$  miles to Punta della Campanella; it is high and cliffy.

- Scoglio Vervece**, 9 cables south-westward of Capo di Massa, and about 6 cables off the coast, is small and 33 feet high; there is a depth of  $4\frac{1}{2}$  fathoms on the bank extending about a cable eastward of it, and close around the rock and bank are depths of from 26 to 31 fathoms. The channel eastward of the rock is clear in the fairway.

- Beacon.**—On the middle of the rock is a green wooden cross.

**Punta di Marcigliano** is about 7 cables southward of Capo di Massa, and Pila di Marcigliano, a rock above water, lies close off it.

- Marina di Massa Lubrense**, about 7 cables southward of Punta di Marcigliano, is a small fishing village. Between the village and Capo Corbo, there is a small area of water sheltered by rocks.

Massa Lubrense and other villages are situated on the hills eastward of the Marina.

**Capo Corbo** is surmounted by a square tower, from which an old wall runs down the slopes.

- Castello dell' Annunziata, 735 feet above high water, with a village of the same name, a little southward of Capo Corbo, is conspicuous between the trees, showing a circular tower, with a high superstructure.

- Punta San Lorenzo, three-quarters of a mile southward of Capo Corbo, is the extreme of a high rocky projection which extends about  $1\frac{1}{2}$  cables westward from the coastline; there is an old tower on the point.

- Punta di Cala Baccoli (Bacoli)**, 6 cables southward of Punta San Lorenzo, is surmounted by a pyramidal tower, named Torre Cala. Cala di Mitigliano, on the southern side of Punta di Cala Baccoli, is a small bight, and there are some rocks above water on its southern side.

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

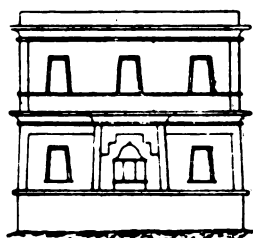
**Telegraph cable.**—The telegraph cable from Capri is landed in Cala di Mitigliano; a notice board, prohibiting anchorage in the vicinity of the cable, stands on the shore at the head of the bight, and further inland is a pole surmounted by an openwork ball. 5

**Torre Fossa**, 7 cables southward of Punta di Cala Baccoli, and about a cable inland on high ground, is large and square.

**Punta della Campanella** (ancient Minervum prom.), is high, rocky, and steep-to; the land rises gradually from the cape to Monte Santo Costanzo, 1,634 feet high,  $1\frac{1}{2}$  miles north-eastward; on the arid and sharp summit of the mount is a conspicuous isolated house; the hills in the vicinity are covered with myrtle and olive trees. A small detached brown high rock lies a few yards south-eastward of the point. 10

**LIGHT.**—A light is exhibited, at 100 feet above high water, from a red building, 30 feet high, situated on the terrace at the lower part of the large square Torre Minerva, on Punta della Campanella.

Signals for assistance (page 34) are made when required, both by day and at night, from a flagstaff on Torre Minerva (*Lat. 40° 34' N., Long. 14° 20' E.*).



Punta della Campanella  
lighthouse.  
Torre Minerva. 20

**ISOLA di CAPRI** (ancient Capreae),  $2\frac{3}{4}$  miles west-south-westward from Punta della Campanella, is about  $3\frac{1}{2}$  miles long east and west, and from  $1\frac{1}{2}$  to half a mile broad. Monte Solaro, 1,919 feet high, about  $1\frac{1}{4}$  miles east-north-eastward of Punta Carena, the south-west extreme of the island, and Monte Cappello, 1,690 feet high, about 3 cables northward of it, are the summits of the western part of the island, and on their western slopes are the villages Anacapri and Caprile; a flight of 535 steps has been cut in the limestone rock up the steep rocky mass of Monte Solaro. Eastward of Solaro and Cappello, the land falls abruptly, and on it is the town Capri, eastward of which the land again rises and attains, near the north-east end of the island, a height of 1,115 feet; the south-eastern end also rises in elevated precipices to the height of 896 feet. Views on plan 1728. The coast is bold, precipitous, and inaccessible, except at Marina di Capri and Marina Piccola, and is perforated with several grottoes. The ground, though rocky, is well cultivated, and produces fruit, oil, and wine, the inhabitants living on these products and by fishing. The population of the island was 7,072 in 1911, and it is visited by some 30,000 people annually. 25 30 35 40

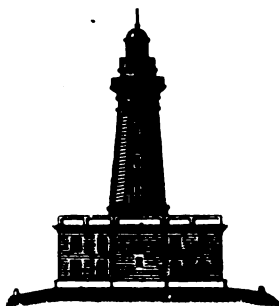
The climate of the island is pleasant throughout the year, and is healthy, being exempt from malaria and intermittent fevers.

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

**Punta Carena** (Lat. 40° 32' N., Long. 14° 12' E.) is the south-west point of the island.

- 5 **LIGHT.**—A light is exhibited, at 240 feet above high water, from a red octagonal tower on a red two-storied house, 94 feet high, on Punta Carena.



Punta Carena lighthouse.

- The west coast** of the island from  
 10 Punta Carena trends northward 1½ miles to Punta Vitareta; it is moderately high, steep-to, rocky, and indented by two bights which are of no importance; the slopes of the hills are cultivated with vines and olives, and there are several  
 15 houses on them. Torre della Guardia, about 4 cables north-eastward of Punta Carena, is 656 feet above high water, slightly conical, light coloured, and conspicuous. There are three old batteries on the coast.

- The north coast** from Punta Vitareta trends eastward, and is high, rocky, and broken to Marina di Capri, distant 1½ miles, with  
 20 deep water close to. Torre Damecuta, about a cable south-eastward of Punta Vitareta, is 495 feet above high water, cylindrical and battlemented.

- The famous Grotta azzura, about 3 cables eastward of Punta Vitareta, is about 180 feet long, with a greatest width of 105 feet; it can  
 25 be entered in a boat when the sea is smooth, a chain leading from the entrance to the inner part of the grotto rendering access somewhat easy.

Anacapri village, on the north-western slope of Monte Cappello, has about 2,375 inhabitants.

- 30 **Marina di Capri** (Marina Grande) extends along the north coast of the low land between the high parts of the island. Forte San Michele, 803 feet above high water, is on the slope of the hills westward of the Marina, but it is not noticeable, as it is the same colour as the country around it. Forte Castiglione, eastward of the  
 35 Marina, is surmounted by a flagstaff, and is conspicuous.

- Porto.**—A mole extends about 250 feet seaward from the coast in front of the houses of the Marina, and then turns about 380 feet to the eastward. There are depths of from 25 to 12 feet in the northern part of the port thus formed, whence the depth decreases  
 40 gradually to the shore.

**Light-buoy.**—A black light-buoy, exhibiting a red fixed light, is moored near the end of the mole.

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

**Anchorage.**—There is anchorage, except with northerly winds, about a cable off the beach of the Marina, in depths of from  $5\frac{1}{2}$  to 8 fathoms.

**Telegraph cable.**—The cable from Cala Mitigliano is landed eastward of the houses of the Marina; its direction is marked by the alignment of a notice board, marked “Divieto d’Ancoraggio,” and a pole surmounted by a ball marked “T.”

**The town** of Capri is situated in about the middle of the low ground southward of the Marina, and has about 3,700 inhabitants.

**Supplies.**—Provisions in moderate quantities can be obtained from the town of Capri, and good water from a fountain at the Marina.

**Communication.**—Steam vessels run twice daily to and from Naples, calling at Massa, Sorrento, Meta, and Vico Equense. A funicular railway runs from the Marina to the town of Capri.

**The coast** from Marina di Capri (*Lat.  $40^{\circ}33'N.$ , Long.  $14^{\circ}14'E.$* ) trends east-north-eastward about a mile to Lo Capo, the north-east point of the island; it is steep cliffs, and off the point is a small high rock. The church of Santa Madonna del Soccorso, 1,115 feet above high water, is on the summit of the north-east part of the island, and a bronze statue on a high square pedestal shows well when the sun shines on it.

**The south coast** from Punta Carena trends eastward  $1\frac{1}{2}$  miles to Punta Ventroso, and is high, steep, and craggy, and it continues so to Marina Piccola, about half a mile further north-eastward, westward of which the land suddenly falls. Sirena di Mulo is a remarkable rocky projection, like a broad mole, which extends southward in front of a group of fishermen’s houses named Marina del Mulo, or Marina Piccola di Capri; there is a mule track from the Marina to Capri town. Westward of La Sirena is a small beach protected by a line of rocks. Eastward of the Marina the coast rises, and attains in a short distance a height of 820 feet; this height is surmounted by the ruins of a castle. Scoglio Unghia Marina, close off the coast southward of the castle, is of the same colour as the rocky land, and shows badly. The coast from near the ruins trends south-eastward about 4 cables to Punta Tragara.

Marina Piccola is visited only by the steam vessels from Naples when strong northerly winds prevent communication at Marina di Capri. These vessels then anchor in from  $4\frac{1}{2}$  to  $5\frac{1}{2}$  fathoms water, weeds, south-westward of La Sirena.

**Punta Tragara** is the extreme of a small, high, conical peninsula. I. Faraglioni are two high, conical, pointed islets about a cable

*General charts 1842, 676, 1440, 2158a and b, 449.*



*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

southward of Punta Tragara; the southern islet is the larger and higher, and the northern one is pierced, east and west, by a large natural arch, through which boats can pass. The water around Punta

5 Tragara and I. Faraglioni is deep.

**Signal station.**—There is a semaphore, 869 feet above high water, about a quarter of a mile northward of Punta Tragara; the house is painted black and white, in chequers.

10 **The east coast** trends northward  $1\frac{1}{4}$  miles to Lo Capo, and is high, broken, and bare. Porto di Tragara (*Lat. 40° 32' N., Long. 14° 15' E.*), northward of the point, has rocky inaccessible shores, and is not frequented; Scoglio Monacone, close off the port, is steep and dark, but lower than I. Faraglioni.

15 **BOCCA PICCOLA**, or Canale di Capri, between Isola Capri and Punta della Campanella, is  $2\frac{3}{4}$  miles wide; the water is deep, and the shores on both sides can be closely approached.

*General charts 1842, 676, 1440, 2158a and b, 449.*

## CHAPTER VI.

## COAST OF THE SOUTHERN PART OF ITALY.—PUNTA DELLA CAMPANELLA TO CAPO SANTA MARIA DI LEUCA.

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*Lat. 40° 32' N. to Lat. 37° 55' N., Long. 14° 20' E. to Long. 18° 23' E.*

VARIATION IN 1917.—Decreasing about seven minutes annually.

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*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

**GOLFO di SALERNO** (ancient Paestanus Sinus), between Isola Capri and Punta Campanella (*Lat. 40° 34' N., Long. 14° 19' E.*) on the north-west, and Punta Licosa on the south-east, is 32 miles wide, and about 15 miles deep. The northern shore from Punta della Campanella to the town of Salerno, 21 miles east-north-eastward, is bold and precipitous, thence a nearly straight sandy beach trends south-south-eastward 22 miles, to Agropoli; the shore from Agropoli to Punta Licosa, 7 miles south-south-westward, is high, cliffy, and, except off the point, steep-to. 5 10

**Seno di Jeranto** extends about half a mile north-eastward between Punta della Campanella and the promontory of Mont' Alto, half a mile to the eastward; its shores are rugged and rocky, and the water is deep. Anchorage can only be obtained in the cove during northerly winds. 15

Scoglio Penna, half a cable south-eastward of the eastern point of the cove, is small, high, and dark.

**Punta di Mont' Alto**, the south-east extreme of the promontory of the same name, is rocky, and rises vertically to two peaks; on a third peak a little northward of the point is Torre Mont' Alto, 20 square, with cornices.

**La Marina di Nerano**, or del Cantone, nearly a mile north-eastward of Punta di Mont' Alto, is a small group of fishermen's houses on a pebbly beach. Small coasting vessels sometimes anchor off it during north-west to north-east winds. Torre di Nerano, square with cornices, is situated on a rocky height, westward of the Marina. 25

Nerano village, on the eastern slope of a green mountain, 4 cables north-westward of the Marina, is noticeable from seaward.

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

**Punta San Antonio**, eastward of Marina di Nerano, is the south extreme of a high and rocky promontory; Torre di Rekomone, situated on the eastern point of the promontory, is square.

- 5 Torre Forca, situated on an arid and steep coast, about a mile eastward of Torre di Rekomone, is square, and of the same colour as the coast.

- Scoglio d'Isca**, about a cable off the coast three-quarters of a mile east-north-eastward of Punta San Antonio, is about  $1\frac{1}{2}$  cables in extent, high, rounded, and covered with poor vegetation; it does not show well.

- Isolotto Vivara**, about a mile east-south-eastward of Scoglio d'Isca, is  $1\frac{1}{2}$  cables long east and west, a cable broad, moderately high, and rounded. A detached rock, with  $2\frac{3}{4}$  fathoms water, extends to a distance of  $1\frac{1}{2}$  cables west-north-westward from the islet.

A rock, with 3 fathoms water, lies three-quarters of a mile eastward of Vivara.

- I. Galli** (ancient Syrenusæ), about  $1\frac{1}{2}$  miles eastward of Vivara, are three rocky islets; Galli (Gallo Grande), the eastern islet, is about a quarter of a mile long north and south, covered with brushwood, and surmounted by a tower (*Lat. 40° 35' N., Long. 14° 26' E.*). La Rotonda,  $1\frac{1}{2}$  cables south-westward of Galli, is about a cable in extent, and close northward of it is La Castellucia (Castelluccio) which is small. A detached rock, with  $2\frac{3}{4}$  fathoms water, lies  $1\frac{1}{2}$  cables westward of La Castellucia. There is deep water around all these islets and rocks; Punta della Campanella light is obscured over them.

- Positano**,  $5\frac{1}{2}$  miles eastward of Torre Forca, is built, in amphitheatre, in a wide valley lying between Monte Comune, 2,877 feet high, about a mile westward, and Monte Sant' Angelo a Tre Pizzi, 4,734 feet high, nearly  $1\frac{1}{2}$  miles north-eastward; it is the only large village near the sea between Punta della Campanella and Capo Sottile. There is a church with a green cupola in the village, and eastward of it is a noticeable tower, the colour of which is the same as the rocky spur on which it is situated. The Marina is on a projection which has a small gravel beach on each side; a road rises from it, cut in the rocky side of the mountain. View on 1728.

**Anchorage** can be obtained, in 7 fathoms water, about a cable off the village, but it must be left on any indication of fresh winds from seaward.

- 40 **The coast** from Marina di Positano trends south-eastward  $2\frac{1}{4}$  miles to Capo Sottile; it is steep and rocky, backed by mountains, which decrease somewhat in height towards the cape. Vettica maggiore, a village, is situated on the western slopes of the hills northward

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Plan 1728, Gulf of Naples. Var. 7° 20' W.*

of Capo Sottile in the midst of vineyards; the church, with a cupola and campanile, is noticeable.

**Capo Sottile** (*Lat. 40° 36' N., Long. 14° 32' E.*), the termination of a spur from Monte Tre Cavalli, 3,678 feet high, is high and steep; it is surmounted by a whitish tower below which are the ruins of a fort.

Scoglio Isca, close southward of the cape, is about 25 feet high, and conical.

Praiano village, the houses of which are generally white, is situated on the green slopes of the hills to the eastward of the cape.

*Chart 1842, Naples to Cape Bonifati.*

**Capo di Conca**, 2 miles eastward of Capo Sottile, is a small rocky projection, surmounted by a conspicuous square yellowish tower. The cape is connected to the main by a low isthmus, and on the hills behind are the houses of Conca Marini, Vettica Minore, and Lone. A little eastward of the cape, in the middle of the high side of a mountain, is a remarkable large arched cave.

**Tunny fishery.**—Tunny nets are laid about 1,100 yards south-eastward from Conca Marini, north-eastward of Capo di Conca, with a width of about 650 yards; two buoys with flags mark the nets by day, and two white lights at night.

**Amalfi.**—Between Capo di Conca and Capo d'Orso, 5 miles to the eastward, is a bay, on the shores of which are Amalfi and Atrani towns, and Minori and Majori villages. Amalfi town, about 2 miles north-eastward of Capo di Conca, is situated near the sea with green mountains behind it, which in many places show high steep rocky cliffs; the industries are the manufacture of paper, feeding paste, and soap; the population is about 7,000. The town was formerly a commercial republic. The long gallery of the cemetery on arches, above the eastern part of the town, is conspicuous.

**Porto Amalfi** is situated within two moles, one extending in a slight curve 275 yards eastward from the shore, and the other extending 45 yards southward from the shore a little north-eastward. There is a depth of from  $4\frac{1}{2}$  to 5 fathoms inside the southern molehead, and  $1\frac{1}{2}$  fathoms about 25 yards from the gravel beach which forms a good landing place. South-easterly winds send a nasty sea into the port, but they are rare and of short duration, shifting in a squall to the south-westward.

**Lights.**—A light is exhibited, at 37 feet above high water, from a pole on an iron hut, 8 feet high, on the head of the southern mole.

A light is exhibited, at 26 feet above high water, from a dark green pole, 20 feet high, on the head of the northern mole.

*General charts 676, 1440, 2158a and b, 449.*

*Plan 1842, Naples to Cape Bonifati. Var. 7° 20' W.*

**Buoy.**—A grey cylindrical warping buoy lies in the port between the moleheads.

**Supplies.**—Provisions can be obtained, and good water procured from a fountain near the beach ; water for boilers and washing can be taken at the mouth of Fiume Canneto, which flows through the town.

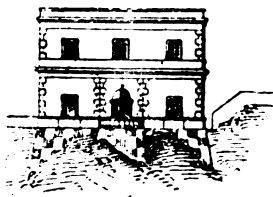
**Communication.**—Steam vessels running between Naples and Messina call weekly. There is telegraphic communication.

**Atrani**, a town with about 2,000 inhabitants, is close eastward of Amalfi, and backed by a steep hill, terminating in a point on which is Torre d'Atrani ; it is partly obscured from seaward by a high viaduct which carries the road.

Minori is at the head of the bay, and a short distance eastward of it the larger village of Majori. The shore from Majori to Capo d'Orso is high.

**Capo d'Orso** (*Lat. 40° 38' N., Long. 14° 42' E.*) is a broad rocky headland.

**LIGHT.**—A light is exhibited, at 219 feet above high water, from a little building, 6 feet high, against a two-storied house, all white, on the western part of Capo d'Orso.



Capo d'Orso lighthouse.

**Current.**—The current in the vicinity of Capo d'Orso generally sets westward ; its rate appears to increase before southerly winds commence.

**Measured distances.**—Two distances for ascertaining the speed of vessels have been measured westward of Capo d'Orso. The running line for both distances is Torre Aucellara, about 2½ miles south-eastward of Salerno, bearing 70° true. The western limit of the



Torre Aucellara.



Camaldoli dell' Avvocata.



Torre di Capo Sottile.

*General charts 676, 1440, 2158a and b, 449.*

*Chart 1842, Naples to Cape Bonifati. Var. 7° 20' W.*

western distance is Punta Carena lighthouse in line with Capo Miseno lighthouse; the limit dividing the two distances is Torre di Capo Sottile in line with an old telegraph post on Monte Sant' Angelo a Tre Pizzi; the eastern limit of the eastern distance is Capo d'Orso lighthouse in line with Camaldoli dell' Avvocata. 5

The western distance is 96,225 feet in length, and the eastern distance is 42,147 feet. The depths on the course vary from about 572 to 41 fathoms.

*Plan, Salerno bay, on 1596.*

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**The coast** from Capo d'Orso (*Lat. 40° 38' N., Long. 14° 42' E.*) trends north-eastward  $3\frac{1}{2}$  miles to Porto Salerno, and is high. Torre Tumolo is on a small rocky point at the eastern extreme of Capo d'Orso; a quarter of a mile north-eastward is Torre d'Erbie, on a similar point. Punta Citara, 7 cables north-eastward of Torre d'Erbie, is surmounted by a conspicuous square tower, and Citara village, which is situated in a ravine a little south-westward of it, has a church with a cupola and campanile. 15

**Tunny fishery.**—Tunny nets extend 500 yards south-eastward from the shore in front of Citara village, with a width of 440 yards; the nets are marked by a red light at night. 20

**Punta di Fuente**, three-quarters of a mile northward of Punta Citara, is bare and rocky. Punta d'Arbore, 4 cables further northward, has a quadrangular tower on it.

**LIGHT.**—A light is exhibited, at 85 feet above high water, from a red building, 5 feet high, in front of a red one-storied house over an old fort on Punta di Fuente.

**Vietri town** is about one mile north-eastward of Punta di Fuente on a high point at the foot of Monte Liberatore, half a mile to the northward and 1,516 feet high. The cathedral has a cupola and a slender campanile. Torre Crestarella, reddish and quadrangular, is on a low rock near the sea eastward of the town. The population of the town is about 8,400.

Two Brothers islets (*Scoglio due Fratelli*), about 2 cables south-westward of Torre Crestarella, are close to the coast and above water. 40

*General charts 1842, 676, 1440, 2158a and b, 449.*



Punta di Fuente lighthouse.

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*Plan, Port Salerno, on 1596. Var. 7° 20' W.*

**Porto di Salerno** is within a mole, named **Molo di Ponente**, which extends about 500 yards southward from the shore, then east-north-eastward about 400 yards, and thence south-eastward about  
5 400 yards, the last section being named **Molo Foraneo** (Outer mole).

A breakwater, to extend south-westward from the coast eastward of the port, is constructing.

Manfredi quay extends about 220 yards southward on the north-east side of the port; on it are the Port office and general warehouses,  
10 and works are in progress for bringing the railway on.

Shoal water extends from the shore on the north side of the entrance to the port, which is about 65 yards wide northward of the inner end of **Molo Foraneo**. The depths have been maintained by dredging at a depth of 16 feet in the entrance, and from 2 to 4 fathoms in the  
15 port, but the depths have altered (1915), and caution is necessary. Southerly winds send a swell into the port.

**LIGHTS.**—A light is exhibited, at 27 feet above high water, from an iron frame, with a crane, on a hut at the south-eastern end of **Molo Foraneo** (*Lat. 40° 40' N., Long. 14° 45' E.*).

20 A light is exhibited from an iron crane over a red hut on the north-western end of **Molo Foraneo**, on the southern side of the entrance to the port.

A light is exhibited from a circular masonry hut on the south-west angle of Manfredi quay.

25 **Light-vessel.**—A light is exhibited, at 20 feet above high water, from a light-vessel, the hull of which is painted grey with *S. Manfredi* in white, moored in 3 fathoms water on the northern side of the entrance to the port, about 100 yards north-north-eastward of the north-western end of **Molo Foraneo**.

30 **Buoys.**—A red iron cylindrical warping buoy is moored in the entrance to the port about  $1\frac{1}{4}$  cables eastward of the north-western end of **Molo Foraneo**.

A cylindrical red mooring buoy lies in the middle of the port.

**Pilots** board arriving vessels at a distance of 2 miles from the  
35 entrance to the port, and take out-going vessels to a distance of one mile from the entrance, when the weather permits. The pilotage charges are: Vessels up to 50 tons, 10 lire and 20 centesimi for every ton; from 50 to 150 tons, 20 lire for the first 50 tons and 10 centesimi for every ton in excess; from 150 to 300 tons, 30 lire for the first 150  
40 tons and 6.6 centesimi for every ton in excess; from 300 to 500 tons, 40 lire for the first 300 tons and 5 centesimi for every ton in excess; from 500 to 750 tons, 50 lire for the first 500 tons and 4 centesimi for every ton in excess; over 750 tons, 100 lire.

*General charts 1596, 1842, 676, 1440, 2158a and b, 449.*

*Plan, Port Salerno, on 1596. Var. 7° 20' W.*

**Directions.**—Keep about 50 yards off the north-east side of Molo Foraneo (*Lat. 40° 40' N., Long. 14° 45' E.*), pass midway between the north-west end of that mole and the light-vessel, and steer into the port. With moderate south-westerly winds care must be taken not to get more than half a cable from the mole, but during strong south-westerly winds no attempt to enter should be made. 5

**Anchorage** off Porto di Salerno is open to winds from south-east to south-west. There is good anchorage with off-shore winds in about 8 fathoms, good holding ground, a mile southward of the head of Molo Foraneo. 10

**Winds.**—During winter the most frequent winds are south-easterly, but the strongest are southerly and south-westerly. In summer west-north-westerly and north-westerly winds prevail, and are sometimes strong. Capo d'Orso obscured by clouds indicates south-easterly or southerly winds, and sudden northerly or north-easterly winds are indicated by strata clouds spreading over the mountains of Agropoli. 15

**The town** of Salerno (ancient Salernum) extends along the coast north-eastward of the port and on the slopes of the hills within; most of the streets are narrow and gloomy, but Corso Garibaldi, along the sea front, is wide, and has the large yellow building of the theatre. On a hill about 5 cables northward of the port is a large castle, and north-westward of it is Torre Bastia, isolated, circular, and conspicuous; westward of the tower and on the western side of a hill, green with olives, is a large white stone cross; there are two arched railway viaducts westward of the root of Molo di Ponente. The principal imports are grain and coal, and exports wood for building, alimentary paste, and wine. The population is about 42,315. A British Vice-Consul is stationed here. 20 25 30

**Shipping.**—In 1911, 211 steam vessels of 129,291 tons, and 600 sailing vessels, of 25,785 tons, entered the port; of the steam vessels 13, of 17,590 tons, were British.

**Supplies.**—Provisions are abundant, but water is scarce and indifferent. 35

**Coal.**—The port has no facilities for coaling, and no coal is maintained in stock, but possibly one firm might be able to supply a few tons.

**Repairs.**—Small repairs can be effected at the mechanical works in the town, and large repairs at Fratte foundry, about 2 miles from Salerno. 40

**Tugs.**—There are two small tugs.

*General charts 1596, 1842, 676, 1440, 2158a and b, 449.*



*Plan, Salerno bay, on 1596. Var. 7° 10' W.*

**Life-saving station.**—A rocket apparatus is stationed at the Port office.

**Hospital.**—The civil hospital (San Giovanni di Dio) has 50 beds and receives foreigners at a daily charge of 3 lire in surgical and 2 lire in medical cases.

**Communication.**—Salerno (*Lat. 40° 41' N., Long. 14° 45' E.*) is on the railway from Naples to Brindisi; the station is half a mile eastward of the town.

**The coast** from Salerno trends south-south-eastward 22 miles, to Agropoli, and is a low sandy beach. Torre Aucellara, on the beach about 2½ miles south-eastward of Porto di Salerno, is large and square, with a light-coloured house over it, and noticeable from its size.

*Chart 1842, Naples to Cape Bonifati.*

**Fiume Tusciano** flows into the sea 8 miles south-south-eastward from Porto di Salerno, and a little within the entrance on the left bank is Torre Tusciana (Tusciano), circular and surmounted by a white hut with a flagstaff; close southward of it are a large white factory and the few houses of Spineta.

**Fiume Sele** (ancient Silarus) flows into the sea 6½ miles southward of Torre Tusciana, after a course of 40 miles; there is generally a depth of 6 feet in the mouth of the river, and the 5-fathom line is about half a mile off it. About half a mile within the mouth and a little distance from the left bank are two cylindrical towers, the inner one having a hut on it.

**Pesto**, the ruins of the ancient Greek town Posidonia, is about 4½ miles southward of Fiume Sele, and about half a mile inland; several beautiful temples, especially that of Neptune, still stand, and are visible from seaward. Near the beach westward of the ruins is Torre di Pesto.

Monte Soprano, about 4 miles eastward of Pesto, is 3,550 feet high, and 1½ miles south-westward of it is Monte Sottane, 2,073 feet high, with Capaccio (Capoccio) village in the valley between.

*Plan, Agropoli bay, on 1405.*

**Torre San Marco**, 2½ miles southward of Torre di Pesto, is on a moderately high rocky point. Between Torre di Pesto and Agropoli, a shallow bank extends nearly half a mile from the shore.

**Agropoli**, a little fishing village, is on a small rocky promontory 1½ miles southward of Torre San Marco, and 4 cables westward of the mouth of Fiume Agropoli; the land to the southward and eastward of the village is high. Eastward of the promontory is a high chimney, and in front of it is a long pier where large boats load with bricks.

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Plan, Agropoli bay, on 1405. Var.  $7^{\circ} 10'$  W.*

**Anchorage** can be obtained, in about 8 fathoms, 6 cables north-north-westward of the promontory on which is the village, but it is open to winds between south-west and north.

**Communication.**—A railway runs from Battipaglia, about 11 miles east-south-eastward of Salerno, where it joins the railway from Naples to Brindisi, to Reggio, and there are stations at Pesto and near Agropoli. There is telegraphic communication.

**The coast** from Agropoli trends south-westward 2 miles to Punta Trentova, on which is a tower in ruins, and thence southward  $1\frac{1}{4}$  miles to Punta Pagliarolo (Pagliarola), on which there is also an old tower. Monte Tresino, three-quarters of a mile south-eastward of Punta Trentova, is 1,158 feet high.

*Chart 1842, Naples to Cape Bonifati.*

**The coast** from Punta Pagliarolo trends southward and south-westward  $4\frac{1}{2}$  miles to Punta Licosa, and is rocky; Ischia della Chitarra and Marina di Castellabate form a continuous line of houses on the coast from 2 to  $2\frac{1}{2}$  miles southward of Punta Pagliarolo.

Castellabate, on a hill, 915 feet high, a little within the marina, has a castle and other buildings.

**Anchorage** can be obtained in 11 fathoms water, sand, and good holding ground, about  $4\frac{1}{2}$  cables off the coast of Marina di Castellabate, but it must be left should winds from south-west to north set in.

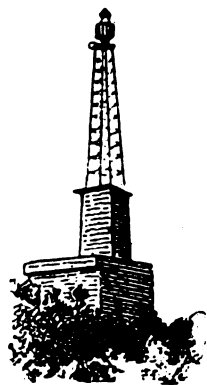
**Punta Licosa** (*Lat.  $40^{\circ} 15' N.$ , Long.  $14^{\circ} 55' E.$* ) is low, and on it are a church and a group of houses. Isolotto di Licosa, about 2 cables off the point, is low and yellowish in colour, like the land in the vicinity; it is surrounded by a shoal bank, and the passage between it and the point is impracticable.

**LIGHT.**—A light is exhibited, at 39 feet above high water, from a grey iron trellis tower, 30 feet high, on Isolotto di Licosa. The light is named Granito.

**Secche di Licosa**,  $1\frac{1}{4}$  miles westward of the islet, is small, with a least depth of  $3\frac{1}{4}$  fathoms, sand and rock. There are depths of from  $4\frac{1}{4}$  to 10 fathoms between it and the islet, and a rocky spit with from 7 to 10 fathoms water extends  $1\frac{1}{4}$  miles west-south-westward from it.

**Weather warning.**—The seamen of the locality state that the summits of the coast mountains, between Punta della Campanella and Salerno, seen covered with clouds, indicates bad weather from the south-eastward.

*General charts 676, 1440, 2158a and b, 449.*



Isolotto di Licosa  
lighthouse.

*Chart 1842, Naples to Cape Bonifati. Var.  $7^{\circ} 10'$  W.*

**The coast** from Punta Licosa trends south-eastward 22 miles, to Capo Palinuro; the country inland is well cultivated and watered by small streams, and there are forests of oak and chestnut.

- 5 **La Torricella**,  $1\frac{1}{2}$  miles east-south-eastward of Punta Licosa, is on the summit of a hill 1,050 feet high, which on north-easterly bearings appears to be bifurcated, with a white pillar on the north-west part.

**Rock.**—A rock with  $1\frac{1}{2}$  fathoms water lies nearly 4 cables off the coast,  $1\frac{1}{2}$  miles south-eastward of Punta Licosa.

- 10 **Punta dell' Ogliastro**, 2 miles from Punta Licosa, is a small low and flat rocky projection, surrounded by foul ground; there is a square tower on it. Ogliastro village, north-eastward of the point, is small.

- Agnone village, on the coast,  $2\frac{1}{2}$  miles south-eastward of Ogliastro, 15 is small, and there is an old tower in front of it.

**La Madonna della Stella** is a small white church on the summit, 3,707 feet high, of a dark conical mountain,  $3\frac{1}{2}$  miles east-north-eastward of Agnone.

- Acciaroli village is on the rocky coast 3 miles south-eastward of 20 Agnone; here there is a large old square tower, and in front of it a line of dark rocks above water. There is a bridge with three arches at the south-east end of the village.

- Torre Calco, nearly a mile south-eastward of Acciaroli, is square, and Secca la Vecchia, a bank with  $1\frac{1}{2}$  fathoms water, extends half a 25 mile south-westward from the coast between. A rock awash lies near the tower.

- La Punta** (*Lat.  $40^{\circ} 10'$  N., Long.  $15^{\circ} 4'$  E.*) is a little promontory,  $1\frac{1}{4}$  miles eastward of Torre Calco, and there is a tower on it; Secco 30 Bove Marino, with one fathom water, lies about 3 cables south-westward of La Punta.

The sea, except when smooth, breaks on all the banks just mentioned, and the coast should not be closed to less than one mile.

- La Marina dei Pioppi** is a small group of houses on the beach about a mile eastward of La Punta, and anchorage, sheltered from 35 north-westerly to north-easterly winds, can be obtained off it. Torre dei Pioppi, on the high land eastward of the houses, is square and isolated.

- The coast** eastward of Pioppi becomes low, sandy, and backed by the high hills surrounding the valley of Fiume Alento, which flows 40 into the sea  $2\frac{1}{2}$  miles to the eastward.

Torre del Telegrafo is on a small low rocky point,  $2\frac{3}{4}$  miles south-eastward of the mouth of the river, close off which is Pietra di Nante, a low rock.

*General charts 676, 1440, 2158a and b, 449.*

No. 1018.—CAPE PALINURO LIGHT—ALTERATION IN CHARACTER.

*Position.*—Lat.  $40^{\circ} 01\frac{1}{2}'$  N., long.  $15^{\circ} 16\frac{3}{4}'$  E.

*Alteration.*—The character of the light has been altered from occulting white to group flashing white showing three flashes every fifteen seconds, thus:—

Flash,	eclipse.	flash,	eclipse.	flash,	eclipse.
2 secs.	1 sec.	2 secs.	1 sec.	2 secs.	7 secs.

Chart No. 1842.

Med. 2, p. 274.



*Chart 1842, Naples to Cape Bonifati. Var. 7° 0' W.*

Pisciotta village,  $2\frac{1}{2}$  miles south-eastward of Torre del Telegrafo, on the side of a conical hill, green with olives, has a church with a little pointed campanile; there is a railway station here. Marina di Pisciotta is four groups of houses on the beach, and close off the second group from the southward is a line of rocks awash. 5

Torre Piano di mare, as it is locally called, situated on high land southward of the marina, is old, square, and dark.

*Plan, Port Palinuro, on 1405.*

**Porto Palinuro**, 5 miles southward of Pisciotta, is a little bay with a sandy beach on the northern side of Capo Palinuro promontory. Palinuro village is on the slope of a hill on the east side of the bay, and southward of it is Fortino Grande, which shows a long wall; Punta Fortino, on the west side of the bay, is surmounted by Fortino Prodesse. Marina di Palinuro is a small group of houses at the head of the bay (*Lat. 40° 2' N., Long 15° 17' E.*). 10 15

**Anchorage.**—Anchor in about 10 fathoms, good holding ground, with Fortino Prodesse in line with Torre Formicola, and about  $1\frac{1}{2}$  cables eastward of the fort. The anchorage is good with south-easterly winds, but south-westerly winds send in a heavy sea, and it is open to the westward and northward; the shift of a cyclonic wind from southward to west or north-westward is dangerous here. 20

**Winds.**—In winter, south-south-westerly gales are frequent, and shift suddenly to the westward and north-westward; in summer, gales, called scossure, commence from the south-east and veer gradually to south-west and west. 25

When the summit of Monte della Madonna della Stella, or that of Monte Bulgaria, to the eastward, is covered with clouds, north-westerly winds are probable, but when the clouds spread around the mountain, leaving the summit clear, southerly winds are indicated. 30

**Capo Palinuro** is the western extreme of a promontory with a smooth summit, which extends about  $1\frac{1}{4}$  miles westward from the coastline, and is 656 feet high; the lower hills are wooded. The west and south coasts are steep cliffs. Punta della Quaglia is the steep north-western point of the promontory, and close southward of it is Torre Formicola. 35

*Chart 1842, Naples to Cape Bonifati.*

**LIGHT.**—A light is exhibited, at 675 feet above high water, from a white octagonal tower on a white house, 46 feet high, on the summit of Capo Palinuro. 40



Capo Palinuro lighthouse.

**Signal station.**—There is a semaphore, 676 feet above high water, on Punta del Gariglio,  $2\frac{3}{4}$  cables eastward of the lighthouse.

*General charts 1842, 676, 1440, 2158a and b, 449.*

*Chart 1842, Naples to Cape Bonifati. Var. 7° 0' W.*

**The coast** from Capo Palinuro trends south-eastward  $7\frac{1}{4}$  miles, to Punta Iscolelli; it is high and steep.

5 Torre di Calafetente is about 2 cables eastward of the semaphore, and Scoglio della Marina, steep, high, rocky, and whitish, lies eastward of the point eastward of the tower.

10 North-eastward of the rock is a bight into which Torrenti Morba and Mingardo flow. Anchorage can be obtained, in about 5 fathoms water, in the western part of the bight at a sufficient distance from the shore and Scoglio della Marina. Between the mouths of Torrenti Morba and Mingardo is an enormous yellowish rocky mass, 453 feet high, and surmounted by the ruins of Castello della Molpa, which are not conspicuous. The coast from the mouth of the Minardo is a sandy beach extending  $1\frac{1}{2}$  miles south-eastward; Torre Finosa, on the rocky  
15 coast a little southward of the beach, is square and whitish.

Isolotto di Camerota, about a mile south-eastward of Torre Finosa, is a low rock, the top of which is covered with vegetation. Torre dell' Isola, on a rocky promontory abreast the rock, is square, with cornices. The passage between the rock and the coast is about three-quarters of  
20 a cable wide with 6 feet water. Marina di Camerota is on the east side of a rocky projection between two bights and about a mile eastward of the islet.

**Punta Iscolelli** (*Lat. 39° 59' N., Long. 15° 25' E.*), arid, light-coloured, steep, and rather high, is bordered with rocks; there is a  
25 square tower on it. Monte Bulgaria, nearly 5 miles northward of the point, is 4,016 feet high, rocky, with a curved outline, falling steeply on its eastern side.

**GOLFO di POLICASTRO** extends about 6 miles northward from its entrance between Punta Iscolelli and Isolotto di Sant' Ianni,  
30 14 miles to the eastward. The shore from Punta Iscolelli trends north-eastward 4 miles, to a point a little within which is Torre Spinosa.

*Plan, Scario anchorage, on 1405.*

**Scario town** extends along the beach midway between Torre Spinosa and Torre  
35 Olive (Oliva), large and square, but low,  $1\frac{1}{4}$  miles north-eastward. It has a cathedral, with a detached campanile, at its north-eastern end.

**LIGHT.**—A light is exhibited, at  
40 79 feet above high water, from a white octagonal tower, 41 feet high, against a white two-storied house, on the beach, about half a mile north-eastward of Torre Spinosa.

**Anchorage** can be obtained off the  
45 town, and about 4 cables from the light-



Scario lighthouse.

*General charts 1842, 198, 676, 1440, 2158a and b, 449.*

*Plan, Scario anchorage, on 1405. Var. 6° 50' W.*

house, in from 7 to 9 fathoms water, good holding ground. A heavy sea sets into the anchorage with southerly winds. This is the best anchorage in the gulf for large vessels.

**Winds.**—Southerly winds seldom last long, but westerly winds are stronger and more lasting. The sides of Monte Bulgaria covered with clouds indicates southerly winds, which will be violent if Monte Caccovello, south-eastward of Sapri, is seen amongst streaks of cloud named *secce*. 5

*Chart 1842, Naples to Cape Bonifati.*

10

**The shore** from Scario to Sapri, about  $6\frac{1}{2}$  miles to the eastward, is bordered by a shoal bank; there are depths of  $2\frac{3}{4}$  fathoms  $3\frac{1}{2}$  cables, and of  $5\frac{1}{2}$  fathoms one mile, off the shore in front of Policastro.

**Policastro**, Pyxus of the Romans, and the supposed site of the ancient colony of Buxentum, is a small village on the sandy shore  $2\frac{1}{2}$  miles north-eastward of Scario, and partly on the side of a conical hill green with olives, on the summit of which is a conspicuous square tower, 285 feet above high water. The air here is bad. 15

**Sapri** (ancient Scidrus), a town with about 3,600 inhabitants, is situated on the shore at the head of a small cove, 5 miles eastward of Policastro. Punta del Fortino, the north-west entrance point, is low, rocky, but there is no fort on it. Capo Bianco, the south-east point, is high, rugged, and surmounted by an old yellowish tower. The cove has a depth of  $4\frac{1}{4}$  fathoms, but it is open to south-westerly winds. 20

**LIGHT.**—A light is exhibited, at 45 feet above high water, from a metal tube on a square battlemented turret, 14 feet high, and painted red, with white lines, on Punta del Fortino. The light is named *Piscane*. 25

**The coast** from Capo Bianco trends southward 15 miles to Capo Scalea; between are many small towns, and towers on the prominent points; high land extends the whole distance. 30

Scoglio dello Scialandro, about half a cable off Capo Bianco, is above water, and blackish in colour.

Acquafredda (*Lat. 40° 2' N., Long. 15° 41' E.*),  $2\frac{1}{2}$  miles south-eastward of Capo Bianco, is a group of houses on high ground covered with olives. There are two viaducts on arches below and northward of the village, and a square tower on a hill to the southward. Near the coast, about one mile southward of the village, is a viaduct on ten arches. Torre Santa Venere,  $2\frac{3}{4}$  miles south-eastward of Acquafredda, is square, light yellow in colour, and situated on a small projection which is surrounded by rocks. 35 40

*General charts 1842, 198, 676, 1440, 2158a and b, 449.*



*Chart 1842, Naples to Cape Bonifati. Var. 6° 50' W.*

Porto **Maratea** is a little cove about one mile south-eastward of Torre Santa Venere, with some houses on the beach at its head; the shores on both sides are rocky.

5     **Isolotto di Sant' Ianni**, about  $1\frac{1}{2}$  cables off the coast  $1\frac{3}{4}$  miles southward of Torre Santa Venere, is about 25 feet high; the lower part is blackish in colour, and the upper part is covered with poor vegetation. The passage inside the islet is clear, and has a depth of  $6\frac{1}{2}$  fathoms in the middle.

10    **Secca della Giumenta**, about  $3\frac{1}{2}$  cables south-eastward of Isolotto di Sant' Ianni, and a quarter of a mile off-shore, has 4 feet water.

15    **Torre Caina** is square, and situated on the summit of a small rocky promontory,  $1\frac{3}{4}$  miles southward of Isolotto di Sant' Ianni; the promontory on south-easterly or northerly bearings is conical and pointed.

**Fiume Talago** flows into the sea  $1\frac{1}{4}$  miles southward of Torre Caina; its mouth is crossed by an iron bridge with five spans.

20    **Praja**, or d'Ajeta, as it is a part of that town, 2 miles southward of the mouth of the Talago, is a summer resort in course of development, on a wide beach at the foot of Serra Venciuolo, 1,715 feet high. There is a railway station here, and steam vessels between Naples and Messina call.

25    **Isola Dino** (*Lat. 39° 52' N., Long. 15° 47' E.*), about one mile southward of Praja, is  $5\frac{1}{2}$  cables long east and west, 2 cables broad, and about 213 feet high; it is level and cultivated on the top, but its coasts are arid and rugged; there is an old tower on the west end of the island. The island is about  $2\frac{1}{2}$  cables off the coast to which it is nearly connected by a line of rocks above water, but there is a passage in the middle, with  $2\frac{1}{2}$  fathoms water, used by small craft.

30    **Anchorage** can be obtained northward or southward of the island, but both positions are open to the westward. A good berth is about  $1\frac{1}{2}$  cables northward of the eastern end of the island where the bottom is sand and weeds, good holding ground. When the wind is strong the current setting with it inside the island attains a considerable rate.

**The coast.**—Torre Fiuza, a quarter of a mile within the coast eastward of Isola Dino, is yellow and square on a rocky base; there are some four houses behind it, and a small old turreted castle on the higher ground.

40    Porto San Nicola, a small sandy cove about one mile southward of Isola Dino, is much frequented by boats, which are able to be hauled

*General charts 198, 676, 1440, 2158a and b, 449.*

*Chart 1842, Naples to Cape Bonifati. Var. 6° 50' W.*

up on the beach. Torre San Nicola is on the southern side of the entrance.

**The coast.**—Capo Scalea (*Lat. 39° 50' N., Long. 15° 46' E.*) is a bold headland with generally steep rocky coasts. Torre di Dino, circular and conspicuous, is on the western and highest point, 266 feet, of the headland; Torre della Petrosa, cylindrical and 340 feet above high water, is on the summit of the headland immediately southward of Capo Scalea. 5

Secca della Giumenta, southward of Torre della Petrosa and a quarter of a mile off-shore, is two ledges of rocks almost awash. 10

Scalea town, about  $1\frac{1}{2}$  miles south-eastward of the cape, is a number of poor houses on the steep southern side of a hill, and there is an old castle above it; the population is about 3,150. Scoglio la Torre, on the beach southward of the town, is surmounted by a square tower and some houses; it is conspicuous. 15

The wide wooded valley of Fiumi Lao and Abatemarco lies southward of Scalea, the rivers being  $2\frac{1}{2}$  and  $3\frac{1}{2}$  miles, respectively, from the town.

Cirella nuova village, situated on a small rocky projection 6 miles southward of Scalea, has a few houses amongst the olives. 20

**Pier.**—An iron pier extends off the beach to the southward of Cirella nuova, and coasting vessels go alongside it.

**Isolotto di Cirella,** nearly a mile southward of the village, and about 3 cables off-shore, is rounded, and surmounted by a square tower; there is a depth of 6 fathoms in the middle of the passage within it, decreasing to both sides, but a shoal bank extends about 60 yards eastward from the islet. 25

**Diamante** village is situated on a small high level point about  $1\frac{1}{2}$  miles southward of the islet; a rocky bank extends a short distance off the point. 30

**Capo Tirone,**  $3\frac{3}{4}$  miles southward of Diamante, is a conspicuous large rocky mass, within which is a square yellow house. Marina di Belvedere, southward of the cape, has a few houses amongst which are a brick kiln, some sheds, and a very high slender chimney. 35

Monte Montea, 5 miles east-north-eastward of Capo Tirone, is 5,853 feet high and noticeable. Several rivers enter the sea from this coast, but the only one which has any importance is Torrente San Gineto,  $2\frac{1}{2}$  miles southward of Capo Tirone; a little northward of its mouth is Castello del Principe, which is noticeable. 40

**Capo Bonifati,** 2 miles southward of the mouth of Torrente San Gineto, is marked by a remarkable greenish hill on which is Torre del Capo, circular and conspicuous.

*General charts 198, 676, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 40' W.*

**The coast** from Capo Bonifati trends southward 39 miles to Capo Suvero, and is steep, sandy, and generally bold-to; a ridge of high land extends along it; the streams which flow to the sea are small. Towns and villages lie on the coast and slopes; the district is generally fertile, producing wine, silk, oil, and fruits.

Cetraro village (*Lat. 39° 31' N., Long. 15° 56' E.*) is situated on a steep hill on the south side of the mouth of a stream  $3\frac{1}{4}$  miles south-eastward of Capo Bonifati.

Guardia-Piemontese, a small village about 4 miles south-eastward of Cetraro, is perched on the top of a mountain, 1,689 feet high, and there is a small tower amongst the houses.

Marina di Fuscaldo,  $3\frac{1}{4}$  miles southward of Guardia, has many houses and a white railway station. Torre di Fuscaldo, a little within and above the Marina, is circular.

**Paola** (ancient Patycos) is on the coast near a ravine which is crossed by a fine bridge connecting the town with its Marina, and there is also a high viaduct on arches southward of the town.

Torre di Paola, large and square, is on moderately high ground near the sea and northward of the Marina.

The principal products are figs and chestnuts; the rearing of silk-worms is the principal industry. The population is about 9,420. Steam vessels between Naples and Messina call weekly.

**Rocks.**—A line of rocks above water extends from the beach in front of Torre di Paola, and a short distance southward and westward from it are some rocks under water; avoid anchoring off the tower.

**Mole.**—A mole projects 270 yards off the coast just southward of the railway station at Paola, and is being extended 250 yards north-westward.

**San Luicido** village,  $3\frac{1}{4}$  miles southward of Torre di Paola, is on the level top of moderately high land, which rises steeply from the beach; behind it is a conspicuous square building.

**Fiumefreddo** (ancient Bruzio),  $4\frac{1}{4}$  miles southward of San Lucido, is a little village about half-way up a hill, with an isolated disused building southward of it. Monte Cocuzzo, about  $2\frac{1}{4}$  miles south-eastward of Fiumefreddo, has a noticeable peak, 5,056 feet high. Between Fiumefreddo and Belmonte,  $4\frac{1}{2}$  miles to the southward, numerous rapid streams flow into the sea.

**Belmonte village** is on a small hill nearly three-quarters of a mile inland; there is a little cupola amongst the houses. Torrente Verre flows to the sea on the south side of the village.

**Scogli d'Isca**,  $2\frac{3}{4}$  cables off the coast three-quarters of a mile southward of the mouth of Torrente Verre, are two rocks about

*General charts 1842, 198, 676, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

100 yards apart; the larger one is 39 feet high. On the northern rock is a small black wooden cross.

**Fiume delle Monache** flows into the sea about half a mile southward of Scogli d'Isca; its mouth is obstructed by rocks, and is crossed by two iron bridges. 5

**Amantea** village is situated on the seaward side of a steep hill southward of the river entrance; there are an old circular tower on its north side and the ruins of a castle on its south side.

**Torre della Guardia**, circular, is situated on a hill, which rises steeply from the beach about  $2\frac{1}{2}$  miles southward of the mouth of Fiume delle Monache; there is a dark rock, attached to the coast, with several small rocks around, at the base of the tower. 10

**Scoglio Formicola** lies south-westward of Torre della Guardia, and about 2 cables off the coast; it is small and 2 feet high. 15

**The coast** from Torre della Guardia to Capo Suvero, 9 miles to the southward, is bold.

About  $1\frac{1}{2}$  miles from Torre della Guardia is the mouth of Fiume Oliva, which has a white gravel bed, and is crossed by an iron bridge. Torre San Giovanni, on the beach three-quarters of a mile further southward, is circular, with a house against it, and some houses around. 20

A small bank with  $4\frac{1}{2}$  fathoms water, and from 11 to 20 fathoms around, lies half a mile off the coast,  $1\frac{1}{2}$  miles southward of the mouth of Fiume Oliva.

Fiume Savuto flows into the sea,  $2\frac{3}{4}$  miles southward of the mouth of Fiume Oliva; the mouth has well-wooded shores, and white low sandbanks; it is crossed by an iron bridge with three spans. 25

Torre del Casale,  $1\frac{1}{2}$  miles south-eastward of the mouth of Fiume Savuto, and nearly half a mile inland, is 500 feet above high water and conspicuous. 30

Torre dei Lupi, a truncated cone in shape, is situated on a rocky spur which extends to the beach, 2 miles southward of Torre del Casale.

**Capo Suvero** (*Lat. 38° 57' N., Long. 16° 10' E.*) rises steeply from the beach to a small height; it is marked by the lighthouse, and also by Torre Spineta (Spineto), nearly 4 cables eastward and somewhat higher than the lighthouse. Monte Mancuso, 4,232 feet high,  $4\frac{1}{2}$  miles north-eastward of the cape, and Falerna and Gizzeria villages on the slopes of the mountains nearer the sea are noticeable. The railway runs round the cape under and seaward of the lighthouse. 35 40

*General charts 198, 676, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

**LIGHT.**—A light is exhibited, at 141 feet above high water, from a white octagonal tower on a two-storied house, 43 feet high, on Capo Suvero.

**GOLFO di SANT' EUFEMIA** (ancient Sinus Terinæus) lies between Capo Suvero and Capo Cozzo (*Lat. 38° 43' N., Long. 15° 59' E.*), 16 miles south-westward. The shore from Capo Suvero trends eastward, southward, and westward about 21 miles to La Rocchetta, and is low and sandy; thence it trends westward, and is rocky. Wheat, Indian corn, and fruits are cultivated, and in some places the country is wooded.



Capo Suvero lighthouse.

Under favourable conditions temporary anchorage can be obtained anywhere in the gulf, but open to westerly winds; the only place affording shelter is the little Porto di Santa Venere.

**Marina di Sant' Eufemia**, a small group of houses, is about 3 miles eastward of Capo Suvero; Bastione di Malta, a large square and battlemented tower, is about 4 cables inland and eastward of the Marina. The town of Sant' Eufemia,  $1\frac{1}{2}$  miles north-eastward of the Marina, has been abandoned on account of its climate.

**Mole.**—A mole, 65 yards long, is being constructed off the Marina (1916), and a red mooring buoy lies about a cable southward of it.

**Torre Mezzapraia**, on the shore  $8\frac{1}{2}$  miles southward of Capo Suvero, is dark in colour; southward of it, and a little inland is a low square fort.

**Tunny fishery.**—Tunny nets extend about  $1\frac{1}{10}$  miles west-north-westward, with a width of 2 cables, from the shore about half a mile southward of Torre Mezzapraia, and are marked by boats and corks by day, and a white light at night.

**Pizzo**, a town with about 9,170 inhabitants,  $5\frac{3}{4}$  miles southward of Torre Mezzapraia, is situated on an enormous tufaceous mass.

Marina di Pizzo, on the shore below the town, is the centre of a moderate coasting trade; the tunny fishery is actively carried on. There is a remarkable old castle, with turrets, south-eastward of the town. The country around is well cultivated.

**Buoy.**—A mooring buoy lies in 8 fathoms water a quarter of a mile off Marina di Pizzo.

*General charts 198, 676, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

**Anchorage.**—The bottom is hard sand, and bad holding ground : anchor either north-eastward or westward of the Marina in depths of from 5 to 11 fathoms, open to winds from seaward.

**Tunny fishery.**—Tunny nets extend about  $1\frac{4}{10}$  miles north- 5  
westward, with a width of  $1\frac{1}{2}$  cables, from Marina di Pizzo ; the nets  
are marked by boats and corks by day, and by a white light at night.

*Plan, Port Sta. Venere, on chart 198.*

**Porto di Santa Venere**, 2 miles south-westward of Pizzo, is  
sheltered by a slightly curved mole, which extends about  $2\frac{1}{2}$  cables 10  
north-eastward from a low point on the western side of the port.

There are depths of from 4 to 8 fathoms in the port.

There is a depth of 5 fathoms 2 cables north-north-westward of the  
end of the mole ; the 5-fathom line then trends south-westward at that  
distance from the north-western side of the mole ; within this line a 15  
sand spit extends nearly 3 cables northward from the shore westward  
of the root of the mole, and there is a depth of  $2\frac{3}{4}$  fathoms on its outer  
end.

In bad weather from between south-west and north the sea breaks  
on the shoal ground north-westward of the mole, and there is also a 20  
heavy sea in the port ; vessels from the westward should pass not less  
than 3 cables northward of the lighthouse, and turn southward into the  
port when the lighthouse bears westward of  $180^\circ$  true.

**LIGHT.**—A light is exhibited, at 47 feet above high water, from  
a black iron trellis tower, 34 feet high, on the head of the mole 25  
(*Lat.  $38^\circ 43'$  N., Long.  $16^\circ 8'$  E.*).

**Buoys.**—There are two mooring buoys in the port.

*Chart 1976, Cape Bonifati to Strait of Messina.*

**Monteleone**, a town nearly 3 miles south-south-westward of  
Porto di Santa Venere, is 1,827 feet above high water, and has an old 30  
but conspicuous castle.

**La Rocchetta** is on the beach about  $3\frac{1}{2}$  miles westward of Santa  
Venere, and there are some houses near it, amongst which is a water  
mill ; there are some black rocks above water off the beach.

**Scoglio Safo** is about half a mile eastward of La Rocchetta, and 35  
2 cables off the coast ; north-eastward of it is a bank which has less  
than 6 feet water in places ; the outer extreme of this bank is about  
 $3\frac{1}{2}$  cables off the coast.

**Briatico**, nearly a mile westward of La Rocchetta, is a village on a  
little height which rises steeply from the beach. 40

**The coast** from Briatico trends westward  $2\frac{1}{2}$  miles to Capo Cozzo :  
it should not be closed to less than a mile. About one mile westward

*General charts 198, 676, 165, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

of Briatico is a square whitish tower on a remarkable yellow tufaceous spur, which rises steeply from the sea; a little westward of it is a high viaduct on arches. Torre Galera is on the coast nearly  $1\frac{1}{2}$  miles westward of Briatico, and in front of it, about half a cable from the coast,  
5 is Scoglio Galera, or Sant' Arena, about 8 feet high, and blackish.

**Capo Cozzo or Zambrone** is rounded with rocky and broken coasts, and on its summit, 406 feet high, is Torre Telegrafo di Zambroni, small and dark.

10 **The coast** from Capo Cozzo trends west-south-westward 9 miles, to Capo Vaticano; it is rocky and clear at the distance of 2 cables.

**Tropea.**—The town of Tropea,  $4\frac{1}{2}$  miles westward of Capo Cozzo, is situated 200 feet above high water on high tufaceous ground, which falls steeply to a wide sandy beach; the country around is  
15 cultivated and wooded. The town, which is partly walled, has a cathedral, several churches and convents, and manufactories of linen goods and counterpanes; kaolin is extracted from the mountains around; there are also active tunny and anchovy fisheries.

On the beach in front of the town are two large tufaceous masses;  
20 San Leonardo, the eastern one, is flat and cultivated on the summit; Isola, the western one, has a large cave, and is surmounted by a shrine; it is connected to the town by a viaduct on arches.

**Quay.**—The construction of a landing quay, with a protective mole, off San Leonardo rock, is in progress.

25 **The coast** between Tropea (*Lat. 38° 40' N., Long. 15° 54' E.*) and Capo Vaticano is generally a narrow sandy beach with rocky cliffs inside it, and well cultivated hills at the back. There are several towers on the beach, and villages on the hills.

Torre Bali, on the edge of a high cliff,  $2\frac{1}{2}$  miles westward of Tropea,  
30 is small.

Scoglio Vadera, about  $1\frac{1}{2}$  miles south-westward of Torre Bali, and  $3\frac{1}{2}$  cables off-shore, is small and dark; it is steep-to, and the passage inside it is clear, with 6 fathoms water in the middle.

**Bank.**—A bank, about 2 miles in extent within the 100-fathom  
35 contour, with a least depth of 40 fathoms and from 125 to 224 fathoms around, lies about 5 miles north-westward of Torre Bali.

**Capo Vaticano** is 410 feet high, steep, rocky, and broken. Some rocks lie off the cape, Scoglio Mantineo, the outer and most noticeable, being distant about  $1\frac{1}{2}$  cables; there is a boat passage inside the  
40 rocks.

**LIGHT.**—A light is exhibited, at 354 feet above high water, from a circular white turret, adjoining a white house of one story, 26 feet high, on Capo Vaticano.

*General charts 198, 676, 165, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

**GOLFO di GIOJA** extends about 4 to 6 miles east-south-eastward from its entrance between Capo Vaticano and Capo Paci, 23 miles south-south-westward. The water in the gulf is deep to a short distance from its shores, and there are no ports of refuge. The shores are mountainous at the extremes, but low and sandy in the central part; several rivers and torrents flow into the gulf, and there are many villages on the shores and the hills within. 5

**The coast** from Capo Vaticano (*Lat. 38° 37' N., Long. 15° 50' E.*) trends south-eastward 7 miles, and is high cliffs. 10

Secca del Monaco is the outer of several rocks, which encumber a small bay immediately south-eastward of the cape; it is about 2 cables off-shore, and within but near the 5-fathom line.

Fortino di Santa Maria is on a point  $1\frac{1}{2}$  miles south-eastward of the cape: a rocky spit nearly awash and terminating in Scoglio Galia, a blackish rock above water, extends  $1\frac{1}{2}$  cables off the point. 15

Torre Joppolo, battlemented, with a house behind it, stands on the steep rocky coast,  $4\frac{3}{4}$  miles from Capo Vaticano.

**Nicotera**, a large village, is about 2 miles south-eastward of Torre Joppolo and on the slope, 690 feet high, of Monte Poro, the summit of which 2,323 feet high, is about 3 miles to the northward. The village has an old palace, and is conspicuous. 20

A sandy beach trends southward about 9 miles from Nicotera, and inside it is the extensive and slightly elevated plain through which flow the united Fiumi Mammella and Messima. 25

**Gioja (Gioja Tauro)**,  $7\frac{1}{2}$  miles southward of Nicotera, and 7 cables inland, is a town with about 5,760 inhabitants; a white square campanile, and the red-tiled roofs of many of the houses are noticeable.

Marina di Gioja, on the beach, has a few houses, to the southward of which is a large oil and sulphur establishment with two high chimneys. The Marina is frequented by small craft, which are hauled up on the beach; wood charcoal, building and fire wood, and wine are exported. 30

**Buoy.**—A red mooring buoy lies in  $6\frac{1}{2}$  fathoms water about  $1\frac{3}{4}$  cables off the beach. 35

**Anchorage.**—Steam vessels in fine weather anchor off the beach; there is a depth of 6 fathoms at a distance of about  $1\frac{1}{2}$  cables.

**Shipping.**—In 1908, 273 steam vessels, of 157,509 tons, and 143 sailing vessels, of 4,290 tons, visited the port.

**Supplies.**—Provisions can be obtained; water is brought from the mountains in pipes and is good. There is no coal. 40

**Communication.**—Steam vessels between Naples and Messina call weekly, and those of another line call about every 15 days. There is railway and telegraphic communication.

*General charts 198, 165, 1800, 1440, 2158a and b, 449.*



*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

**Life-saving station.**—A rocket apparatus is stationed at Gioja.

**The shore.**—Fiume Petrace flows into the gulf about half a mile southward of Marina di Gioja, and is crossed, about 8 cables within its mouth, by a long iron bridge. The shore from the mouth of the river trends southward 4 miles to Capo Barbi, and becomes high and rocky.

*Chart 188, Catania to Cefalù.*

**Capo Barbi** (*Lat. 38° 21' N., Long. 15° 50' E.*) is mountainous, and its summit is covered with olives; Palmi village is on the high ground within it. Monte Sant' Elia, 1,900 feet high, is southward of the village.

The shore from Capo Barbi trends southward  $4\frac{1}{4}$  miles to Bagnara, and is high and cliffy.

*Plan 177, The Faro or Strait of Messina.*

Torre Rosci,  $3\frac{3}{4}$  miles southward of Capo Barbi and situated on a rocky hill which separates two light-coloured sandy beaches, is cylindrical.

**Bagnara**, a town with about 11,140 inhabitants, is built on the site of the ancient Portus Balarus; there are two remarkable viaducts behind the town. Anchorage off the town is unsafe, and the currents are strong.

**Telegraph cable.**—A telegraph cable is landed south-westward of Bagnara, and four notices on the beach indicate the prohibited anchorage.

**The shore** from Bagnara trends west-south-westward  $4\frac{3}{4}$  miles to Scilla, and is high, but a bank with less than 5 fathoms water extends about 2 cables off it in places.

Favazzina village is on the shore  $2\frac{1}{2}$  miles from Bagnara, the hills between being covered with vegetation.

**Scilla** (ancient Scylla) rises in terraces from the sandy bays on both sides of Rocca di Scilla, a spur which projects about 2 cables from the shore line and terminates in an enormous circular rock on which are the ruins of a large old castle; it contains many fine buildings; the population is about 7,400.

There are silk manufactories, and good wines are produced; from July to September sword fish are caught in large numbers. The land in this locality rises to a considerable height, and is scored by deep ravines, chiefly channels of mountain torrents, and is thickly wooded in places.

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Plan 177, The Faro or Strait of Messina. Var. 6° 30' W.*

**Pietra Vuoja**, about 4 cables eastward of Rocca di Scilla and one cable off-shore, is low with a flat surface.

**Mole**.—A mole extends about 80 yards north-eastward from near the outer end of the eastern side of Rocca di Scilla; it was damaged in 1911, and should not be approached until further notice. 5

**Anchorage**.—Temporary anchorage can be obtained not more than  $1\frac{1}{2}$  to 2 cables off-shore, eastward of the north extreme of Rocca di Scilla, in about 16 fathoms water.

**LIGHTS**.—A light is exhibited, at 28 feet above high water, from a mast on a cement base, 25 feet high, on the head of the mole at Scilla. 10

A light is exhibited, at 240 feet above high water, from an iron trellis tower, 20 feet high, on Castello di Scilla.

**Marina di Scilla** is at the head of a bay lying between Rocca di Scilla and Capo Paci, 6 cables to the westward, and which has rocky shores with a wide beach in the middle. The strong currents of the strait run through this bay, and it is seldom visited. 15

**Life-saving station**. — A lifeboat is stationed here (*Lat. 38° 15' N., Long. 15° 43' E.*). 20

**Winds**.—In summer the prevailing winds in Golfo di Gioja are north-westerly; these winds set in about 10h. a.m. and last till sunset; although moderate they raise sufficient sea sometimes to prevent communication with the shore; at night there is an easterly breeze with a smooth sea. The other winds in this season, which are exceptional, attain, especially south-westerly winds, a moderate force, and do not last more than two or three days. From October to April, south-westerly and north-westerly winds prevail, accompanied by a heavy sea. South-westerly winds are very strong and persistent, and attended by hail and rain; with these winds most of the shipwrecks in the gulf occur. South-easterly winds, although sometimes very strong, do not raise much sea. 25 30

**Tidal streams**.—The streams in the gulf set northward during the rising tide, and south-eastward during the falling tide, at a rate which varies from 2 to 3 knots in the southern part of the gulf, and diminishes gradually to the northward. The inshore streams follow the streams in the Strait of Messina and turn with them. (*See page 424.*) An hour after the cessation of the north-going stream, a counter stream commences and sets northward on the shore from Capo Paci to Capo Vaticano; it is named Bastardo della Montanté. This stream, which has but little width off Capo Paci, continues along the shore till near Capo Vaticano, gradually losing in rate, but increasing in width, so that its rate, which sometimes reaches 3 knots between Scilla and 35 40

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Plan 177, The Faro or Strait of Messina. Var. 6° 30' W.*

Bagnara, is greatly reduced at Nicotera, and is very feeble at Capo Vaticano. There is no counter stream during the falling tide. The streams are subject to irregularities, especially with strong winds  
 5 between south-west and north-west, when great caution is necessary in sailing vessels when approaching the shore. Further observations are required on these streams.

**The coast** from Capo Paci (*Lat. 38° 15' N., Long. 15° 43' E.*) trends west-south-westward  $3\frac{1}{2}$  miles to Punta Pezzo, and is a beach,  
 10 broken by the mouths of several streams, rising a short distance inland to well-cultivated hills. Torre Cavallo, on a rocky spur, near the sea a little more than a mile from Capo Paci, is circular, with a long wall on arches westward of it. Further south-westward, on the extreme of the rocky spur, are the remarkable ruins of Castello di Alta Fiumara,  
 15 and a large yellow building named Casa Porticello. Alta Fiumara flows into the sea half a mile south-westward of Torre Cavállo, and near its mouth are the ruins of a castle. Cannitello village, on the beach about a mile westward of the mouth of Alta Fiumara, has been almost destroyed by an earthquake.

20 **Anchorage** can be obtained by large vessels about 2 cables north-westward of the mouth of Alta Fiumara, in 16 fathoms, sheltered from winds between east, through south, and south-west, but it is impossible to stay here during strong northerly winds. There is a tide rip about 4 cables westward of the mouth of the river.

25 **FARO or STRAIT OF MESSINA** (ancient Fretum Siculum) separates the coast of Calabria from Sicily; its northern entrance between Torre Cavallo and Capo Peloro, or di Faro, is  $1\frac{3}{4}$  miles wide, and it continues about the same width 2 miles west-south-westward; it then turns southward, and, at a distance of about 12 miles,  
 30 widens to 8 miles between Punta Pellarò and Capo di Scaletta. View at this place, and on plan 188.

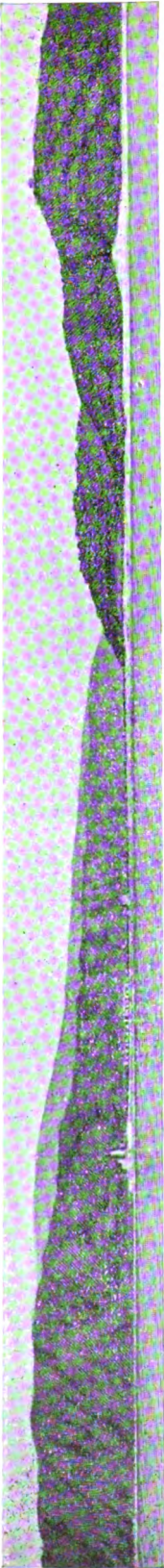
**Punta Pezzo** is flat and sandy to the foot of the low hill about 2 cables within it, on which is Pezzo village. Piale village is on a hill about three-quarters of a mile south-eastward of the point.

35 **LIGHT**.—A light is exhibited, at 46 feet above high water, from a grey trellis framework on the generator, 46 feet high, on Punta Pezzo (*Lat. 38° 14' N., Long. 15° 38' E.*).

**Tide rips**.—There are heavy tide-rips in the vicinity of Punta Pezzo.

40 **The coast** from Punta Pezzo turns southward  $2\frac{3}{4}$  miles, to the mouths of Fiumara di Catona, and is a wide sandy beach, the cultivated slopes of the hills rising gradually inside it.

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

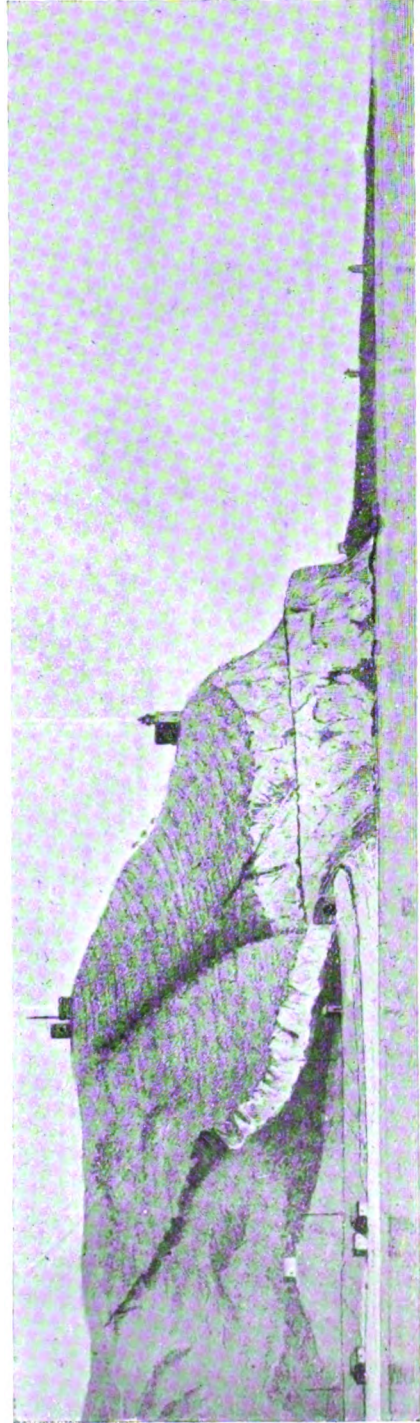


*Calabria.*

*Lighthouse bearing 146° true.*

*Strait of Messina.—Capo Peloro.*

*Semaphore.*



*Semaphore.*

*Lighthouse bearing 146° true.  
Capo dell'Armi.*



*Plan 177, The Faro or Strait of Messina. Var.  $6^{\circ} 30'$  W.*

**Villa San Giovanni** extends between Punta Pezzo and Acciarello village, about a mile to the southward; it is an industrial centre, with many chimneys belonging to silk weaving factories and steam mills. 5

The port lies about 8 cables southward of Punta Pezzo; it is within a mole with an elbow, which shelters a small area of water from southerly winds. There are wharves along the beach in the port, but the depth alongside them is very small; there are depths of about  $3\frac{1}{2}$  fathoms alongside the outer part of the mole. A little mole extends 10 from the wharves in the north part of the port, and has a depth of one fathom at its head.

**Light.**—A light is exhibited, at 26 feet above high water, from a hut with a metal framework, on the head of the mole.

**Fortified port.**—Villa San Giovanni is a fortified port. See 15 Regulations, page 30.

**Prohibited anchorage.**—Anchorage is prohibited off the coast from  $1\frac{1}{2}$  cables southward of Porto di Villa San Giovanni to the mouths of Fiumara di Catona.

**Communication.**—There is railway communication with 20 Naples and Reggio, and a service of steam ferry boats with Messina.

*Chart 188, Catania to Cefalù.*

**The coast** from the mouths of Fiumara di Catona (*Lat.  $38^{\circ} 11' N.$ , Long.  $15^{\circ} 39' E.$* ) trends southward  $3\frac{1}{4}$  miles to Porto Nuovo di Reggio; it is high, well cultivated, and several streams flow through it into 25 the strait. Catona village, near the mouth of Fiumara di Catona, and Gallico village, near the mouth of Fiumara Gallico, about a mile to the southward extend along the beach, but the water off them is too deep to afford safe anchorage.

Rada di Pentimele is a small bay lying between the mouth of 30 Torrente Torbido, which forms a little point about  $1\frac{1}{2}$  miles southward of Fiumara Gallico, and the mole of Porto Nuovo. There is anchorage 2 cables off the beach in 27 fathoms, good holding ground; it is one of the most secure anchorages in the strait, as the streams are weak, and south-westerly winds do not generally blow there with much force. 35

**Porto Nuovo di Reggio** lies within a mole which extends about 200 yards northward from a small point. The entrance, eastward of the head of the mole, is about 100 yards wide with depths of from  $2\frac{1}{2}$  to 5 fathoms, and the depths in the port are from  $3\frac{1}{4}$  to  $4\frac{1}{4}$  fathoms. The south-west side of the port is bordered by quays, on 40

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Chart 188, Catania to Cefalù. Var. 6° 30' W.*

which there is a railway. The port is well sheltered except from northerly winds.

**Lights.**—A light is exhibited, at 36 feet above high water, from  
5 a hut with an iron framework on the head of the mole.

A light is exhibited under the light just mentioned when the port is full of shipping.

A light is exhibited, at 26 feet above high water, from a hut with an iron framework on a masonry base situated on the beach eastward  
10 of the mole head.

**Buoys.**—There are a white cylindrical iron mooring buoy, and a red iron cylindrical mooring buoy near the entrance to the port.

**Giunchi anchorage** is a little distance southward of the port. There are two cylindrical iron buoys, and one square wooden buoy in  
15 the anchorage.

**Reggio** (ancient Rhegium Julii) (*Lat. 38° 7' N., Long. 15° 39' E.*), on the shore of the strait about half a mile southward of the port, has about 44,570 inhabitants. It was much damaged by the severe earthquake of 28th December, 1908; part of its walls can be seen  
20 from a considerable distance. The industries are extracting essences of orange, lemon, and bergamot, rearing silkworms, weaving silk, and producing oil, wine, and fruit. There are several iron, copper, and silver mines in the locality, but they are unworked. A British Vice-Consul is stationed here.

25 **Fortified port.**—Reggio is a fortified port. *See Regulations, page 30.*

**Trade.**—The principal exports are oils, wine, and silk, and imports, coal and cereals.

**Coal.**—No large quantities of coal, patent fuel, or oil are on sale.  
30 Coal is sent off in lighters, and some 250 tons can be put on board in 24 hours.

**Supplies.**—Fresh provisions are fairly plentiful; good water can be obtained from the public fountain, and there are some water boats.

**Communication.**—Reggio is on the railway which runs from  
35 Naples to Metaponto; there is a service of ferries, carrying trains and passengers, between Reggio and Messina, and vessels should give them a good berth so as not to interfere with their route.

**Winds.**—Northerly and north-easterly winds prevail at Reggio during 225 days of the year; easterly and south-easterly winds 42  
40 days; southerly and south-westerly winds 88 days. During winter, winds between north and south, through east, are prevalent, and during summer winds between east and west, through north; south-

*General charts 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Chart 188, Catania to Cefalù. Var. 6° 30' W.*

westerly to north-westerly winds are the strongest. The rainfall is greatest from September to February.

When the water in the port is low fine weather may be expected, unless there are other indications to the contrary; when the water is high expect bad weather from the southward. Low clouds over the mountains in Sicily, travelling rapidly southward, indicate north-easterly winds; white clouds behind those mountains indicate north-westerly winds. When the summit of Monte *Ætna*, 10,880 feet high, is capped with clouds, and there are other sharp-edged clouds in the vicinity, south-westerly winds are indicated.

**The coast** from Reggio trends southward 9 miles to Capo dell' Armi, and is low and sandy. Punta Calamizza, south-westward of Reggio town, has some sunken rocks near it. Fiumara di Sant' Agata flows into the strait  $1\frac{1}{2}$  miles further southward, and at its mouth is a wide bed of white gravel; it is crossed near the mouth by a long iron bridge on low pillars, and further up by a masonry bridge with large arches.

Baia di Pellaro extends about  $3\frac{1}{2}$  miles southward from the mouth of Fiumara di Sant' Agata to Punta Pellaro; the water in it is deep.

Punta Pellaro is wide and sandy, and a sandbank of recent formation extends off it; at 30 yards from the point there are  $1\frac{1}{2}$  fathoms water. Lazzaro village, on the beach,  $3\frac{1}{2}$  miles southward of the point, and Fiumara di Lazzaro, on its south-western side, with a grey bed and a red iron bridge over it, are noticeable.

**Capo dell' Armi** (*Lat. 37° 57' N., Long. 15° 41' E.*) projects but little; it is high, with steep whitish rocks. View at page 420.

**LIGHT.**—A light is exhibited, at 312 feet above high water, from a small white octagonal tower over a white two-storied house, 40 feet high, on Capo dell' Armi.

**Signal station.**—There is a semaphore, 402 feet above high water, above the lighthouse on Capo dell' Armi. The signal house with tower is painted black and white in chequers; there are other houses near it. It is a Lloyd's signal station.

*Plan 177, Strait of Messina.*

**Strait of Messina.—Coast of Sicily.—LIGHTS.**

**Capo Peloro.**—A light is exhibited, at 85 feet above high water, from a little tower on the west side of the towers of an old fort, 73 feet high, on Capo Peloro, and about 150 yards east-north-eastward of a lighthouse damaged by an earthquake.

**Punta Sottile.**—A light is exhibited, at 25 feet above high water, from an iron framework on a little grey cylindrical house on Punta Sottile, about  $1\frac{1}{4}$  cables south-westward of the preceding light.

*General charts 1976, 198, 165, 1800, 1440, 2158a and b, 449.*



*Plan 177, Strait of Messina. Var. 6° 30' W.*

**Punta Secca.**—A light is exhibited, at 42 feet above high water, from an iron trellis support on a square tower, painted white and red in horizontal stripes, 43 feet high, on Punta Secca.

**Punta San Ranieri.**—A light is exhibited, at 136 feet above high water, from an octagonal turret, painted white and black in horizontal stripes on a grey square tower, 139 feet high, on Punta San Ranieri.

**Pilots** for the Strait of Messina are found some miles northward of Capo Peloro, and about 3 miles southward of Messina.

The pilotage charges are for vessels of from one to 100 tons, 25 lire ; from 100 to 200 tons, 35 lire ; from 200 to 300 tons, 45 lire ; from 300 to 400 tons, 60 lire ; from 400 to 500 tons, 75 lire ; over 500 tons, 5 centesimi for every ton over 500 tons in addition to the charge of 75 lire, but the total amount is not to exceed 150 lire.

**Firing practice** from guns in the forts on each side of the strait is carried on occasionally ; a red flag is hoisted at the fort which is firing, when vessels should keep not less than 3 miles from it.

**Tidal streams.**—The streams in the Strait of Messina are tidal ; the principal stream, setting northward during the rising tide, is called *montante*, and that setting southward during the falling tide is called *scendente* ; the rate and direction change according to the season and the prevailing winds. The greatest rate observed is 5 knots, and the streams are more rapid at springs than at neaps. Occasionally the streams are masked by currents produced by wind or other causes, when the current may run in one direction for many hours.

The south-going stream begins at Capo Peloro at IXh., full and change, and sets towards Alta Fiumara (*Lat. 38° 14' N., Long. 15° 41' E.*), thence to Punta Pezzo and Pace, and arrives off Messina at XIh., when it sets towards Reggio.

The north-going stream begins at Punta Pezzo at IIIh., full and change, at which time the south-going stream is running in the south part of the strait ; the north-going stream does not begin at Punta San Ranieri until 2 hours later, and it is completely established in the strait 4 hours after its commencement at Punta Pezzo. The turns of the streams do not take place in a regular manner, and the times above given are an average value.

Counter streams form on the sides of the principal streams one or 2 hours after their commencement ; those which occur during the

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*



Punta San Ranieri lighthouse.

*Plan 177, Strait of Messina. Var. 6° 30' W.*

main north-going stream are called *bastardi*, and those during the main south-going stream are called *refoli*. These counter streams commence near the land, and, as the main streams lose their strength, attain a width of half a mile or more; the rates of the counter streams increase and decrease with the main streams. The principal counter streams on the coast of Calabria, which set northward whilst the main stream is setting southward, are in *Baia di Pellaro*, and between *Punta Calamizzi* and *Catona*; there is still water between *Catona* and *Punta Pezzo*. The principal counter stream on the coast of Calabria, which sets southward whilst the main stream is setting northward, is between *Alta Fiumara* and *Punta Pezzo* (*Lat. 38° 14' N., Long. 15° 38' E.*); this stream extends to the middle of the entrance to the strait.

The streams are not felt southward of *Capo Pellaro*.

The meeting of two opposing streams produces whirls in many places in the strait; they are locally called *garofali*, and are marked on the plan by scrolls; tidal races occur also where the stream passes over an uneven bottom.

**Winds.**—The prevailing winds in the strait in winter are northerly and north-easterly, and they are very violent when the Calabrian mountains are covered with snow. In this season there are frequently opposing winds, especially when there is a fresh north-westerly wind in the Tyrrhenian sea; there are also southerly winds, accompanied by a heavy sea in the strait, particularly with south-easterly winds.

In March, west and west-south-west winds prevail, and are dangerous to sailing vessels entering the strait from the northward.

In summer north-easterly winds prevail in the day from 6h. a.m. to sunset, and are fresh in the afternoons; at *Catona* they sometimes cause a heavy sea, especially with a contrary stream. In June sometimes easterly and south-westerly winds meet in the strait, where it is calm until one wind predominates over the other.

Westerly winds are strong, but do not last long; south-easterly winds, on the contrary, increase in force and last some 15 days; they are generally followed by south-westerly winds, which in a short time veer to west and north-west, and the weather becomes fine. Violent squalls, dangerous to small vessels, sometimes come down through the valleys.

**Directions.**—**Steam vessels** proceed through the fairway of the strait, and give *Capo Peloro* a berth of not less than half a mile.

**Sailing vessels.**—It would not be prudent, unless having a knowledge of the tidal streams, to take a sailing vessel through the strait without a pilot, especially at night.

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Plan 177, Strait of Messina. Var. 6° 30' W.*

**From the northward**, bound through the strait, with a northerly wind and south-going stream, keep in the middle of the strait, and from abreast of Capo Peloro (*Lat. 38° 16' N., Long. 15° 39' E.*)  
 5 steer to pass half a mile north-westward of Punta Pezzo; then steer southward, approaching the coast of Calabria, where the tidal stream is favourable, until off Reggio, when keep in the middle of the strait.

With a northerly wind and a north-going stream get into the counter stream off Alta Fiumara, and keep along the shore to Villa  
 10 San Giovanni; then steer south-westward, and when in the middle of the strait steer southward.

With a southerly wind and south-going stream, when in the counter stream, keep on the port tack until near the coast of Sicily; then work southward in the fairway, but do not approach the land on  
 15 account of the north-going counter-stream until near Pentimele when the land may be approached, as there is no counter-stream, but Baia di Pellaro should not be entered. Southward of Punta Pellaro the land may be approached to a safe distance.

With a southerly wind and north-going stream it is well to reduce  
 20 sail, and keep off the north coast of Sicily, between Capo Rasocolmo and Mortelle village, so as to be at the entrance to the strait at the turn of the stream; or anchor on the bank eastward of Capo Peloro, to await the turn.

**From the southward**, with a southerly wind and a north-  
 25 going stream, keep in the middle of the strait.

With a southerly wind and a south-going stream, from off Capo Scaletta, keep along the coast of Sicily at the distance of from  $1\frac{1}{2}$  to 2 cables, to take advantage of the north-going counter-stream; when  
 near Messina cross to the coast of Calabria, and get into the counter-  
 30 stream off Acciarello, keeping along the coast to Punta Pezzo; if the south-going stream is still strong, cross to the coast of Sicily, near Canzirri (Ganzirri), where the stream is favourable; but should it be weak, steer direct towards Capo Peloro, and out of the strait.

With a northerly wind and a north-going stream, work to windward  
 35 on the coast of Calabria, northward to the mouth of Fiumara di Sant' Agata; thence cross to the coast of Sicily, and continue on that side, working from near the coast to about the middle of the channel; when off Messina cross to the coast of Calabria, and work up as on the opposite side to Punta Pezzo; then work in mid-channel, to avoid the  
 40 eddies; if, however, Canzirri can be reached on one tack, keep on that side until southward of Faro village, standing off to the middle of the channel, and keeping a sufficient distance off Capo Peloro.

With a northerly wind and a south-going stream, from near Capo Pellaro work northward in the counter stream in Baia di Pellaro;

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Plan 177, Strait of Messina. Var. 6° 30' W.*

from the north point of the bay cross to the coast of Sicily, and work between the coast and mid-channel. When near Messina cross to the coast of Calabria, and work northward to Punta Pezzo in the counter current, whence cross to the coast of Sicily, but should the stream be strong and the wind too weak to reach it, heave to in the counter stream and await the turn of the main stream. 5

*Chart 188, Catania to Cefalù.*

**The coast** from Capo dell' Armi (*Lat. 37° 57' N., Long. 15° 41' E.*) trends east-south-eastward 5 miles to Melito town; it is high and bordered by a beach which commences about a mile from the cape; there are depths of nearly 50 fathoms one cable off the coast; some streams flow through the valleys between the spurs of the mountainous range of Aspromonte and into the sea; their mouths are generally crossed by ironwork bridges on masonry pillars. 15

Melito di Porto Salvo is on the right bank of Fiumara di Melito and on rising ground a short distance inside the beach; it has about 5,340 inhabitants. On the beach to the south-westward of the town, and near a church with a cupola and campanile, is Porto Salvo village, a small group of houses. 20

About 2½ miles northward of Melito, at 1,515 feet above high water, is the small village Pentadattilo; it is on a crag, and is said to have derived its ancient name of Pentadactylus from the peculiar resemblance of the crag to a man's fist.

The coast from Melito trends eastward 13½ miles to Capo Spartivento; Torre del Salto or Trinita, on the coast 1½ miles eastward of the mouth of Fiumara di Melito, is not conspicuous. 25

*Chart 1976, Cape Bonifati to Strait of Messina.*

Fiumara di Acrifa flows into the sea about three-quarters of a mile eastward of Torre del Salto, and 2 miles further eastward is Fiumara Amendolea, with a wide bed which is almost always dry in summer. 30

**Marina di Bova** is 4½ miles eastward of Torre del Salto, and Bova village is 4 miles to the northward of it, on high ground about a mile southward of Monte Porticella di Bova, 3,425 feet high. Bova suffered severely from the earthquake in 1783. 35

**Anchorage** can be obtained off Marina di Bova, by large vessels in 16 fathoms water, a little more than 4 cables from the coast; smaller vessels anchor in about 3½ fathoms 2 cables off the coast, and southward of the bridge over Torrente Salerno. These anchorages are considered the most secure on the coast, with northerly winds. 40

**The coast** eastward to Torre Mozza, distant 3½ miles, is bordered by rocks, above and below water. There is a large light-coloured spot on the coast eastward of the Marina.

*General charts 188, 1976, 198, 165, 1800, 1440, 2158a and b, 449.*

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 30' W.*

Torre Mozza (*Lat. 37° 55' N., Long. 16° 0' E.*), on a little promontory, is dark and quadrangular. A rocky bank, with a least depth of 1½ feet, extends about 2 cables southward from the promontory, and  
5 caution is necessary by coasting vessels, when keeping close to the coast in fresh northerly winds, to clear it.

**Anchorage** can be obtained off the railway station of Palazzi, about half a mile westward of Torre Mozza, and also off the coast between Torre Mozza and the sandy Punta di Spropoli, 2 miles to  
10 the eastward, where there is a depth of 9 fathoms about half a mile, and 5½ fathoms about 3 cables, from the coast.

There are two rocks, each about 30 feet in extent, about 2 cables off the beach between Punta di Spropoli and Capo Spartivento; the rocks are 30 feet apart, and there is a depth of 4 feet on the western  
15 and 7 feet on the eastern one. The coast here should not be closed to less than half a mile.

**CAPO SPARTIVENTO** (ancient Herculeum prom.) is 158 feet high, rugged, rocky, and bordered by a narrow sandy beach; shoal water extends a short distance off, but the cape can be closed to  
20 the distance of half a mile. View at this page.

**LIGHT.**—A light is exhibited, at 210 feet above high water, from a white square tower, 51 feet high, against a white two-storied house, on Capo Spartivento.

**Signal station.**—There is a semaphore close to the lighthouse,  
25 and 151 feet above high water. The house is painted black and white in chequers.

**Storm signals** are exhibited at the semaphore. *See* page 17.

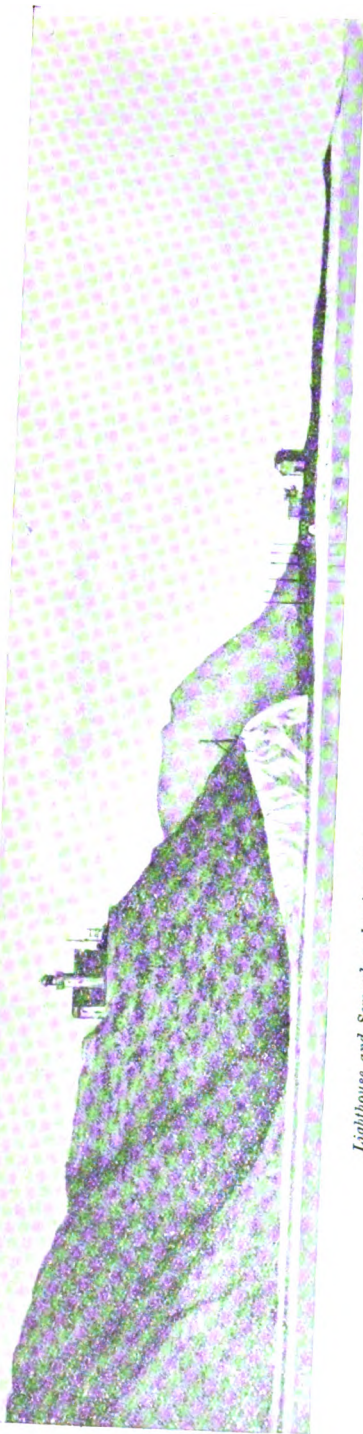
**The coast** from Capo Spartivento trends north-eastward 40 miles to Punta Stilo, and is a low sandy beach, backed by hills, and, further  
30 inland, by mountains of moderate elevation. The coast should not be approached to less than one mile, and does not afford safe anchorage except with off-shore winds.

Most of the villages on this coast, having the houses parallel to the beach, appear large from seaward, whilst they are of no importance.

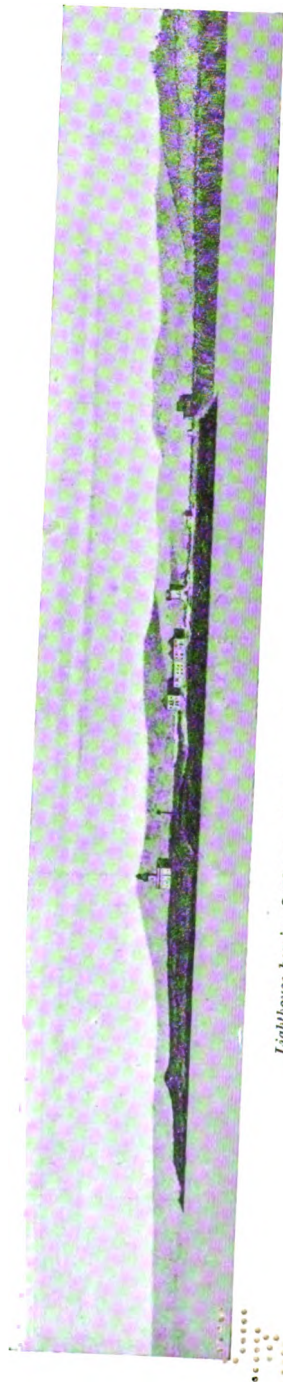
35 Torre Sperlonga, 302 feet above high water, is on a small rocky hill 3 miles north-eastward of Capo Spartivento, and a sunken rocky bank extends about 1½ cables seaward from the coast below it. Marina di Brancaleone is situated north-eastward of the tower; the village of the same name, with a campanile, 1,148 feet above high water, is  
40 one mile north-westward of its marina. La Fiumarella, the mouth of which is on the north-east side of the marina, is crossed by a masonry bridge with three arches.

Scoglio Monistili, about 2 miles north-eastward of Torre Sperlonga, and close to the shore, is small.

*General charts 198, 1800, 1440, 2158a and b, 449.*



*Lighthouse and Semaphore bearing 78° true.*  
**Capo Spartivento.**



*Lighthouse bearing 248° true, distant one mile.*  
**Capo Colonne.**

49

*Chart 1976, Cape Bonifati to Strait of Messina. Var. 6° 20' W.*

**Capo Bruzzano** (ancient Zephyrii prom.), about 5 miles north-eastward of Torre Sperlonga, is rocky, and there is a conspicuous tower, 479 feet above high water, on the summit of a little hill on its southern side; some small rocks border the cape. Monte Scapparone, 3,465 feet high,  $5\frac{1}{2}$  miles westward of the cape, is bare, with a thin wood on its summit, and about midway between is Monte Ferruzzano, 1,542 feet high, with the village of the same name on its summit, conspicuous from seaward. 5

**Bianco** (Lat  $38^{\circ} 5'$  N., Long.  $16^{\circ} 9'$  E.), a village with about 2,460 inhabitants, is near the coast, 3 miles north-eastward of Capo Bruzzano, and the hills behind it are of a light colour. About  $2\frac{1}{2}$  and 3 miles northward of Bianco are the mouths of Fiumare Buonomico (Buonomico) and Careri; the beach between the Buonomico and Marina di Ardore shows as a long clear stripe from seaward. 15

Marina di Bovalino is about  $3\frac{1}{2}$  miles northward of Bianco; the large square Torre Spinosa, in front of it, does not show well from a distance seaward, being seen against the houses. Bovalino, about  $1\frac{1}{2}$  miles north-westward, is 692 feet above high water, and its campanile is noticeable. 20

**Torre di Gerace**, on the coast 4 miles north-eastward of Torre Spinosa, is almost destroyed. Marina di Gerace is on the coast 2 miles north-eastward of the tower, and Gerace village is on ground 1,571 feet high, 3 miles north-westward. The ruins of the old town, which was destroyed by the earthquake in 1783, cover an extent of 2 miles. There is a red mooring buoy in  $3\frac{3}{4}$  fathoms water about 2 cables off the marina. 25

**Marina di Siderno**, about 2 miles north-eastward from that of Gerace, has about 10,780 inhabitants, and is the most important off the coastal villages in this locality. Siderno, about  $1\frac{1}{2}$  miles north-westward, is only partly seen on the side of a mountain from near the coast. There is a red mooring buoy in 5 fathoms water about  $1\frac{1}{2}$  cables off the coast in front of the marina. 30

*Chart 198, Policastro to Cape Sta. Maria di Leuca.*

**Gioiosa**, a town with about 11,200 inhabitants, is situated about  $2\frac{1}{2}$  miles inland and 4 miles northward of Marina di Siderno, but a succession of houses, concealed from off the coast by the hills, is scattered on the left bank of Fiumara Turbolo, and connects it with its marina. 35

Monte Sant' Andrea, 2,306 feet high, 3 miles north-eastward of Gioiosa, is a good mark. 40

**Roccella Jonica** (ancient Romechium), 4 miles east-north-eastward of Marina di Gioiosa, is a village with about 6,340 inhabi-

*General charts 198, 1800, 1440, 2158a and b, 449.*



*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 20' W.*

tants, and behind it is a rocky hill, surmounted by a large old citadel, northward of which is an old tower, about 500 feet above high water.

- 5 A slight rise of the sandy bottom, perhaps produced by the alluvium from Fiumare Turbolo and Allaro, has been noticed about  $1\frac{1}{2}$  cables off Roccella beach.

**Anchorage** can be obtained with off-shore winds in front of the marina in 8 fathoms water, or nearer the beach in  $2\frac{1}{2}$  fathoms water, good holding ground.

- 10 **Buoy.**—A red cylindrical mooring buoy lies, in  $3\frac{1}{4}$  fathoms water, about  $1\frac{1}{2}$  cables off the beach of Roccella Jonica.

- The coast.**—Torre Cammilari, 134 feet above high water, and white, is on a coast hill, covered with olives, situated between the iron bridges crossing Fiumare Amusa and Allaro. Torre San Fili, 15 370 feet above high water and circular, is on an arid hill, with olives on the summit, 2 miles north-eastward of Torre Cammilari. Torre di Riace (Riace), 321 feet above high water, and Torre Vellera (Vedera), 266 feet above high water, are near the coast,  $2\frac{3}{4}$  and 4 miles, respectively, north-eastward from Torre San Fili. The large villages 20 Caulonia and Stignano are noticeable from seaward.

Marina di Monasterace (Monasterace), about  $1\frac{1}{2}$  miles north-eastward of Torre Vellera, has always some large boats hauled up on the beach.

- Punta Stilo** is low and sandy, and on it are the ruins of a light- 25 house destroyed by an earthquake. Monte Stella, 7 miles westward of the point, is 3,435 feet high, and noticeable; Monte Consolino, about 2 miles north-eastward of it, is an immense and rugged rock, 2,300 feet high, with almost vertical sides; on its eastern side is Stilo village.

- LIGHT.**—A light is exhibited, at 144 feet above high 30 water, from a circular masonry turret, 14 feet high, with a one-storied house and a hut for the generator adjoining, on Punta Stilo. 35



Punta Stilo lighthouse.

- GOLFO di SQUILLACE** (ancient Scylleticus sinus) extends about 14 miles north-westward from its entrance between Punta Stilo (Lat.  $38^{\circ} 27' N.$ , Long.  $16^{\circ} 35' E.$ ) and Capo Rizzuto, 36 miles north-eastward. The shore of the gulf is low, sandy, and, from July to 40 November, infested with malaria; inland, at various distances, are the high and generally green spurs of the Calabrian Apennines.

Many streams flow into the gulf; they are generally torrents and dry in summer. The railway runs along and a short distance from the shore.

*General charts 1800, 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 20' W.*

The shores are clear at a short distance; the depths are considerable, the 100-fathom line being less than a mile off the north-western shore in places. There is no shelter from winds from seaward.

**The coast** from Punta Stilo trends northward 19 miles to Punta di Staletti. Fiume Assi flows into the gulf a little northward of Punta Stilo lighthouse; **Marina di Vincerello** is  $1\frac{1}{2}$  miles northward of the mouth of the river, and near the coast a little further northward is **Monte San Paolo**, 341 feet high. **Marina di Sant' Antonio** is 2 miles northward of Monte San Paolo, and about 2 miles westward of it is **Santa Caterina del Jonio** village, situated half-way up a mountain 1,575 feet high; it has a conspicuous campanile. **Marina di Badolato** is about 3 miles northward of **Marina di Sant' Antonio**; the houses, being between woods, do not show well; **Badolato** village is about 2 miles inland; the anchorage off the marina is considered the best in this locality; anchor in 8 fathoms water about 7 cables off the coast, or in small craft in 3 fathoms about a cable off the coast, eastward of the railway station.

**Sant' Andrea Apostolo** village, 3 miles northward of **Badolato**, is on a hill, 1,017 feet high, and on its south side is a church with a pointed campanile.

**Marina di Soverato** is 4 miles northward of **Sant' Andrea Apostolo**, and the coast in front of it is very steep, so that sailing vessels anchor close off it, and some of from 50 to 60 tons displacement go alongside the beach and load by the aid of brows. There is a cement wharf on the beach.

**Scoglio Pietra Grande** is the largest of a group of rocks close to the coast 3 miles northward of **Soverato**.

**Punta di Staletti** (*Lat. 38° 45' N., Long. 16° 34' E.*) is the eastern extreme of a promontory (called *Coscia* or **Monte di Staletti**), partially covered with vegetation, the coasts of which are generally rocky. There is a long railway viaduct with twelve arches near the point. **Staletti** village is on the summit of a mountain, 1,253 feet high, about  $1\frac{1}{2}$  miles inland.

**Squillace village** (ancient *Scyllacæum*) is on a remarkable conical mountain, 1,132 feet high,  $1\frac{1}{2}$  miles north-westward of **Staletti**.

**Marina di Catanzaro**, 4 miles north-eastward of **Punta di Staletti**, is the most important in the district. **Fiume Corace**, which flows into the gulf on the south side of the marina, has a small sand-bank at its mouth. The town is about 5 miles northward of the marina, and from seaward appears like a large white patch on the mountains; the population is about 32,000. The country around is richly cultivated, producing large quantities of silk, and olive and walnut oil.

*General charts 1800, 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 10' W.*

**LIGHT.**—A light is exhibited, at 43 feet above high water, from an iron framework structure on a masonry base, 30 feet high, on the beach of Marina di Catanzaro.

- 5 **Buoy.**—A red iron mooring buoy lies in 21 fathoms about  $2\frac{1}{2}$  cables of the beach of Marina di Catanzaro.

**Anchorage.**—The depth off the marina is too great for convenient anchorage.

- 10 **Communication.**—Marina di Catanzaro is on the Reggio-Metaponto railway. Steam vessels running between Palermo, Messina, and Brindisi call weekly.

- The coast** from Marina di Catanzaro (*Lat. 38° 49' N., Long. 16° 37' E.*) trends east-north-eastward 18 miles to Barco Vercillo; anchorage can be obtained with off-shore winds half a mile from the coast between the marina and Fiumara del Crocchio, 11 miles to the eastward, and one mile off the coast thence to Barco Vercillo. Torre del Crocchio, on the right bank of the river of the same name, is dark and noticeable; there is a house westward of it.

- 20 Cropani village, 4 miles north-westward of Torre del Crocchio, is 1,115 feet above high water, and its church, which has on its north-east side a crushed dome and on its south-west side a sharp campanile, is noticeable.

*Plan, Cape Rizzuto anchorage, on 198.*

- 25 **Barco Vercillo** anchorage is used by small vessels, which anchor in about 3 fathoms water, sand, from  $1\frac{1}{2}$  to 2 cables off-shore, sheltered from winds between west, through north, and east. San Leonardo village is in the locality.

- 30 **The coast** from Barco Vercillo trends south-eastward 3 miles, to Le Castella, and a rocky bank with less than 3 fathoms water extends half a mile off it.

**Le Castella** is a group of ruins, surmounted by a large cylindrical tower, on a little peninsula, which gives its name to a small fishing village behind it.

- 35 **Secca delle Castella**, about  $4\frac{1}{2}$  cables south-westward from Le Castella, is nearly 2 cables in extent, with  $1\frac{3}{4}$  fathoms least water; there are depths of from  $3\frac{1}{4}$  to  $5\frac{1}{4}$  fathoms between the shoal and Le Castella. The two towers on Capo Rizzuto in line lead about  $1\frac{1}{2}$  miles southward of the shoal, which is covered by a red sector of Capo Rizzuto lower light.

- 40 **The coast** between Le Castella and Capo Rizzuto,  $3\frac{1}{4}$  miles to the eastward, forms a bay which extends about one mile to the northward. The shores of the bay are steep, rocky, and moderately high, and Capo

*General charts 198, 1800, 1440, 2158a and b, 449.*

*Plan, Cape Rizzuto anchorage, on 198. Var. 6° 10' W.*

Piccolo, a small low rocky promontory, projects from the shore about  $2\frac{1}{2}$  miles eastward of Le Castella. The depths in the bay are irregular and rocky, and the 10-fathom line is from 5 to 9 cables off-shore; there is a rock with 2 fathoms water nearly 7 cables off-shore in the middle of the bay, and a rock with 3 fathoms water 6 cables further eastward. 5

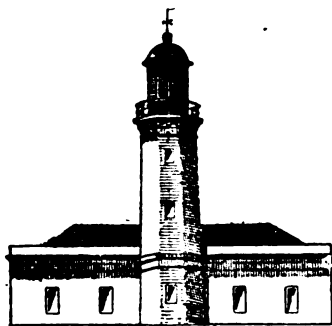
There is anchorage eastward of Le Castella; also on the east side of the bay, sheltered from northerly and easterly winds, where great care is required when anchoring. 10

**Capo Rizzuto** (ancient Japygumtria) (*Lat. 38° 54' N., Long. 17° 6' E.*) is the extreme of a low rocky peninsula with steep coasts, which projects about 8 cables southward from the coastline. There are two towers on the peninsula; the western one is 46 feet above high water and square, the eastern one 42 feet and round. 15 The houses of Madonna Greca village, about 4 cables north-eastward of the round tower, are noticeable.

**LIGHTS.**—A light is exhibited, at 121 feet above high water, from a white octagonal tower, 72 feet high, with a one-storied house, on Capo Rizzuto. 20

Another light is exhibited, at 118 feet above high water, from the same tower.

**Secche di Capo Rizzuto** or di Madonna Greca, about  $1\frac{1}{2}$  miles east-north-eastward from the cape, has 2 fathoms water, and three-quarters of a mile further east-north-eastward is a patch with  $4\frac{3}{4}$  fathoms water; these shoals are covered by a red sector of Capo Rizzuto lower light. 25



Capo Rizzuto lighthouse. 30

**Light-buoy.**—A red cylindrical light-buoy, surmounted by a staff and exhibiting a *white flashing light every five seconds, flash half a second*, is moored near the south-eastern end of the  $4\frac{3}{4}$ -fathom patch just mentioned. 35

*Chart 198, Policastro to Cape Sta. Maria di Leuca.*

**The coast** from Capo Rizzuto trends north-eastward 10 miles to Capo Colonne, and is generally rocky cliffs from 50 to 65 feet high. Capo Cimiti, 5 miles north-eastward of Capo Rizzuto, is the extreme of a low rocky promontory, off which a bank with  $4\frac{3}{4}$  fathoms water 40 extends more than half a mile north-eastward.

*Plan, Cotrone and Cape Colonne anchorages, on 198.*

Torre Scifo, on the coast,  $3\frac{3}{4}$  miles northward of Capo Cimiti, is square with some windows.

*General charts 198, 1800, 1440, 2158a and b, 449.*

*Plan, Cotrono and Cape Colonne anchorages, on 198. Var. 6° 10' W..*

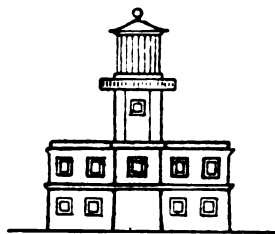
- Anchorage** can be obtained southward of Capo Colonne peninsula, in about 10 fathoms water, with Torre Scifo bearing 284° true, and Capo Colonne lighthouse 30° true, sheltered from north-westerly and northerly winds.

- Capo Colonne** (ancient Lacinian prom.) is the east end of a peninsula which projects about a mile eastward from the coastline; its coasts are rocky cliffs about 60 feet high. There are some houses, uninhabited in winter, an old and large square tower, and a small church on the cape; also the ruins of Tempio di Giunone Lacinia, and a fine large Doric column. View at page 428.

A bank, with three-quarters of a fathom least water, extends a quarter of a mile eastward from the coast about 2 cables southward of the north extreme of the cape.

- LIGHT.**—A light is exhibited, at 133 feet above high water, from a white octagonal tower over a white two-storied house, 64 feet high, on Capo Colonne.

- Signals for assistance are made by day, see page 34.



Capo Colonne lighthouse.

- Signal station.**—There is a semaphore, 472 feet above high water, on a hill about 2 miles westward of Capo Colonne; the house, with a tower, is painted black and white in chequers.

- Storm signals** are exhibited from the semaphore. See page 17.

*Chart 198, Policastro to Cape Sta. Maria di Leuca.*

- GOLFO di TARANTO.**—Capo Santa Maria di Leuca lies 71 miles north-eastward from Capo Colonne (*Lat. 39° 1' N., Long. 17° 12' E.*), and Golfo di Taranto extends 70 miles north-westward from between them.

- The western shore of the gulf is backed by the mountains of the Calabrian Apennines, with some remarkable summits; the eastern is low and flat, with some hills inland. A beach, generally sandy, surrounds the gulf, and the land on its north-western side is swampy and infested with malaria.

- Winds.**—In winter north-easterly winds prevail, and usually last from three to seven days at a time. Southerly winds, violent but of less duration, raise a heavy sea, and it is dangerous to be caught by these at anchor on the coast.

- In summer, after a period of calm, there are sometimes strong north-westerly to north-easterly winds of short duration called *tormenta*, which are indicated by thick clouds on the horizon, with lightning.

*General charts 198, 1800, 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 10' W.*

The sea in the gulf is heavy with north-easterly to south-easterly winds.

**Currents.**—A current generally sets southward along the west shore of the gulf at a rate of less than one knot; southerly winds influence its direction, and when fresh and durable, or before a strong south-easterly wind, the current may set northward. The currents on the east shore are much affected by the winds, and a northerly current often indicates strong southerly winds. 5

*Plan, Cotrone and Cape Colonne anchorages, on 198.*

10

**The coast** from Capo Colonne trends north-westward  $4\frac{1}{2}$  miles to Cotrone, and some rocks lie close off it in places.

**Anchorage.**—There is anchorage during off-shore winds in about 8 fathoms water, with the semaphore bearing  $180^\circ$  true and Capo Colonne (extreme)  $120^\circ$  true; also south-eastward of Cotrone town in 7 fathoms water, with Molo Vecchio lighthouse  $330^\circ$  true, and the cemetery  $255^\circ$  true. 15

*Plan, Port Cotrone, on 198.*

**Cotrone** (ancient Croton) (*Lat.  $39^\circ 5'$  N., Long.  $17^\circ 8'$  E.*), a town with about 9,550 inhabitants, is built on a hill southward and westward of a conspicuous fort. The trade of the town is not of much importance, and consists chiefly in exports of cereals, oil, and wood. 20

**Porto Vecchio** di Cotrone, south-eastward of the town, is within a mole and its entrance is open south-south-westward. The area of the port is very restricted, and the greatest depth is  $2\frac{3}{4}$  fathoms in the middle, decreasing to the sides; it is slowly but continuously silting up. The port is safe with all winds; during fresh easterly winds the sea breaks at the mouth, and whilst it does not trouble vessels in the port, it makes entrance dangerous. 25

**Rocks.**—The 5-fathom line is about  $1\frac{1}{2}$  cables eastward of the mole, and there are several rocks between. 30

**Porto Nuovo** di Cotrone lies westward of a mole which extends about half a mile northward from the mole of Porto Vecchio. There were depths of from 4 to 6 fathoms in the north-eastern part of the port, but less depths have been reported, and a shoal bank extends from one to  $2\frac{1}{2}$  cables off the shore. 35

In 1896 the mole was partially destroyed, rendering caution necessary in approaching the port, and making the anchorage insecure in bad weather, especially in easterly gales.

**LIGHTS.**—A light is exhibited, at 30 feet above high water, from an iron crane with a masonry hut, about 40 yards from the south end of the mole of Porto Vecchio. 40

A light is exhibited from a post on the Health office jetty, Porto Vecchio.

*General charts 198, 1800, 1440, 2158a and b, 449.*

*Plan, Port Cotrone, on 198. Var. 6° 10' W.*

A light is exhibited, at 39 feet above high water, from a masonry turret on the head of the mole of Porto Nuovo.

*Chart 198, Policastro to Cape Sta. Maria di Leuca.*

- 5 **The coast** from Cotrone trends northward 19 miles to Punta Alice, and is a sandy beach, with gravel in places, and depths of 4 fathoms about three-quarters of a mile off it.

- Fiume Neto flows into the gulf, through a low wooded projection, 7½ miles northward of Cotrone; there is deep water off the mouth,  
10 but a rock, with about 3 feet water, lies about half a cable north-north-eastward from the north entrance point.

A small bank, with 82 fathoms water, and from 110 to 244 fathoms around, lies 5½ miles east-south-eastward of the mouth of Fiume Neto.

- 15 Strongoli, on a hill, 1,102 feet high, about 6 miles north-westward of the mouth of Fiume Neto, has a remarkable castle on its southern side. San Nicolo dell' Alto, about 3½ miles north-westward of Strongoli, is a mountain with a sharp peak, 2,027 feet high.

- Torre Melissa, on a little hill, 151 feet high, near the sea, 6 miles  
20 northward of Fiume Neto, is large, and a truncated cone in shape.

Torre Nuova, on the beach 3½ miles northward of Torre Melissa, is very old, pink in colour, and falling into ruins.

- Marina di Cirò or La Baracca**, northward of Torre Nuova, is a long line of houses on the beach, which is steep-to. Cirò village,  
25 3½ miles to the westward, has about 7,000 inhabitants; it is 1,092 feet above high water, and conspicuous from seaward. The railway station is three-quarters of a mile from the marina.

- Punta Alice** (*Lat. 39° 24' N., Long. 17° 9' E.*) is low, sharp, and bold; its extreme is sandy and bare, but the land within is covered  
30 with vegetation.

- LIGHT.**—A light is exhibited, at 98 feet above high water, from a white octagonal tower, on a white house, 79 feet high, on Punta  
35 Alice.

**The coast** from Punta Alice trends north-westward about 8 miles to Punta Fiumenica, and is sandy.

- Torre Vecchia, 1½ miles westward  
40 of Punta Alice, is square, and anchorage can be obtained off it during south to west winds; the little church of Madonna di Mare, near and a little higher than the tower, is noticeable.



Punta Alice lighthouse.

*General charts 1800, 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 20' W.*

Crucoli village is situated on a wooded hill  $2\frac{1}{2}$  miles inland and 7 miles westward of Punta Alice.

**Punta Fiumenica**, the east entrance point of the torrent of the same name, is low, and on it is the isolated, square Torre del Policaretto. 5

**The coast** from Punta Fiumenica trends north-westward  $14\frac{1}{2}$  miles to Capo Trionto, and is sandy.

Cariati village, with about 4,300 inhabitants, is situated near the coast,  $3\frac{1}{2}$  miles west-north-westward of Punta Fiumenica, on the slope of Monte Acquaviva, which is 1,460 feet high; in the village is a cupola covered with majolica tiles. 10

Calopezzati village is on a hill, 708 feet high, about a mile inland and 8 miles north-westward of Cariati; there is a castle on its southern side. 15

**Anchorage** can be obtained, in depths of from 3 to 14 fathoms, off Cariati during off-shore winds.

**Capo Trionto** (*Lat. 39° 37' N., Long. 16° 46' E.*) is low, and covered with thick woods, which obscure the tower on the point; the water off the point is deep. 20

**The coast** from Capo Trionto curves westward and northward 15 miles to Punta Cascio, and is low and sandy, with several streams flowing through it into the sea. Sant' Angelo village, which is the Marina di Rossano, is on the coast 6 miles westward of Capo Trionto. 25

Rossano town (ancient Roscianum), nearly 3 miles southward of the marina and on a hill, 1,017 feet high, has about 13,350 inhabitants; there is some trade in olive oil and liquorice. 25

**Buoy.**—A red iron cylindrical mooring buoy lies in the anchorage off Marina di Rossano.

**Anchorage.**—The small vessels, which load with oil and liquorice, anchor off the marina in about 25 fathoms water, 160 yards off the beach, with a hawser to the shore, in fine weather, but keep ready to sail on the first sign of wind from seaward. 30

**Winds.**—In winter, northerly and easterly winds alternate with short periods of calm and southerly winds. Westerly winds are often violent, especially in summer. 35

**Currents.**—The current sets almost constantly south-eastward in winter, except when strong southerly winds have been blowing, which turn it to the north-westward; the rate of the current is about one knot, increasing near the coast. 40

**Corigliano**, 5 miles westward of Rossano, is situated on a hill, 718 feet high, about  $3\frac{1}{4}$  miles inland; a castle rises above the houses

*General charts 1800, 1440, 2158a and b, 449.*



*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 20' W.*  
of the town, and is conspicuous from seaward; the population is about 15,380.

**Schiavonia**,  $4\frac{1}{2}$  miles north-westward of Sant' Angelo, may be considered the **Marina di Corigliano**, and is frequented in summer for bathing. A tower, with two watch-houses in front of it, stands on the beach, where there are also two buildings with a long colonnade between them.

**Punta Cascio** (*Lat. 39° 43' N., Long. 16° 32' E.*) is at the mouth of Fiume Crati, which rises in the forests of Sila and has a course of about 50 miles; there are two narrow banks in the mouth, with about 7 feet water. There is deep water a short distance off the point; the water from the river, after heavy rains, discolours the sea for some miles off it. The land near Punta Cascio is an extensive plain covered with thick vegetation.

The coast from Punta Cascio trends north-north-eastward 15 miles to Capo Spulico, and is sandy; on the coast, about a mile north-westward of Punta Cascio, is Casa Bianca, about half a mile off which anchorage can be obtained in from 11 to 16 fathoms water, mud bottom, open to seaward; inland the country is thickly wooded.

Torre Cerchiara, on the beach nearly 4 miles northward of Casa Bianca, is light in colour; the locality is very unhealthy on account of the marshes in the vicinity.

**Villapiana** is a little village on a hill, 682 feet high, 3 miles north-north-westward of Torre Cerchiara. Torre Villapiana, on the beach between a red house and a little iron bridge, is cylindrical.

**Trebisacci (Trebisacce)** (*Lat. 39° 52' N., Long. 16° 32' E.*), 5 miles north-north-eastward of Torre Cerchiara, is built on a whitish spur, 240 feet high, from the mountains, which extends, with steep sides, on to the beach, where there is **Marina di Trebisacci**, which consists of a row of houses and a red railway station. Amongst the houses of the higher village is a church with a cupola, and a square sharp campanile.

Pizzo delle Armi, 4,721 feet high, and Monte Pellari, 4,383 feet high, locally named Due Sorelle, are two sharp summits, close together and similar in shape, belonging to the same mountain, situated 7 miles westward of Trebisacci, which is rugged, rocky, and imposing.

**Buoy.**—A red cylindrical iron mooring buoy lies on the line of the extension of a small pier at **Marina di Trebisacci**, and about  $2\frac{1}{2}$  cables off-shore.

**Anchorage.**—There is anchorage in 11 fathoms, half a mile, and in  $2\frac{1}{2}$  fathoms,  $1\frac{1}{2}$  cables, off the shore of **Marina di Trebisacci**.

*General charts 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 20' W.*

**Torre di Albidona**, 3 miles north-eastward of Trebisacci, and on the edge of a steep spur, 259 feet high, the sides of which are cultivated, is circular.

**Amendolara** village, with about 2,300 inhabitants, lies on a hill, 777 feet high,  $2\frac{1}{2}$  miles northward of Torre di Albidona, and  $1\frac{1}{2}$  miles inland. There are a few houses and a railway station at the marina, north-eastward of the mouth of Fiume Straface. 5

**Secca Amendolara**, 7 miles south-eastward of Capo Spulico, is a bank about half a mile in extent, with 14 fathoms water, and from 21 to 26 fathoms close around. 10

**Capo Spulico**, very low, and partly covered with woods, projects somewhat seaward at the mouth of Fiumara Ferro; the 5-fathom line is about half a mile off it. A circular tower (*Lat. 39° 57' N., Long. 16° 38' E.*) stands on the coast southward of the cape. 15

**The coast** from Capo Spulico trends northward, 9 miles, to the mouth of Torrente Canna, and is high; there are depths of  $4\frac{1}{2}$  fathoms and more at the distance of half a mile, but many rocks lie close off it.

Roseto village is situated on a green hill, 689 feet high, 2 miles north-westward of Capo Spulico; Castello di Roseto, on the coast, about  $1\frac{1}{2}$  miles northward of the cape, is noticeable. 20

Montegiordano,  $4\frac{1}{2}$  miles north-westward of Roseto, is 1,965 feet high, and on it is a village of the same name, with a campanile.

**Marina di Rocca Imperiale** is on the coast near the mouth of Torrente Canna, and on the slope of a hill about 2 miles westward of it is Rocca Imperiale village, with about 2,060 inhabitants; it has a conspicuous castle. 25

Torre Canna, on the left bank of the mouth of Torrente Canna, is large and square, and near it is the red railway station.

**The coast** between Torrente Canna and Punta Rondinella, 34 miles north-eastward, is low, the country being marshy, wooded in places, and traversed by many streams which form numerous swamps; it is uninhabited, as it is infested with malaria, especially in summer and autumn. 30

Torre Bollita, on the beach, about  $1\frac{1}{2}$  miles north-eastward of the mouth of Torrente Canna, is circular. 35

Fiume Sinni flows into the sea about 4 miles north-eastward of Torrente Canna; the river has a course of 60 miles through a dense forest and underwood. The mouths of the river form a sandy point which projects considerably seawards; the muddy water from the river often discolours the sea to a distance of about 2 miles, but there are depths of about 5 fathoms half a mile off the point. 40

*General charts 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 10' W.*

Between Fiume Sinni and Fiume Agri, 5 miles north-eastward, are several lagoons close to the beach; the country is well wooded, and produces large quantities of liquorice. Wild boar, deer, and other game abound.

Torre Scanzano, on the beach nearly 3 miles northward of Fiume Agri, is large, square, and isolated. Pisticci village, 12 miles north-westward of Torre Scanzano, is 1,188 feet above high water, and noticeable from the whiteness of its houses.

10 Torremare is about  $7\frac{1}{2}$  miles north-eastward of Torre Scanzano and between Fiumi Basento and Bradano; near it are the ruins of Metaponto, a Greek colony, and there is a railway station here at the junction of the lines from Naples to Brindisi and from Reggio to Metaponto.

15 Torre Mattoni, on the beach about 2 miles north-eastward of Fiume Bradano, is square and dark in colour.

Torre Lato, on the right bank of Fiume Lato, which flows into the sea about 7 miles north-eastward of Torre Mattoni, is square; the mouth of the river is crossed by an iron railway bridge. The surrounding low hills are covered with dwarf pine, juniper, and cypress, there is also much marshy land. The water is shoal for a short distance off Torre Lato.

25 Castellaneta village, 803 feet above high water, 9 miles northward of Torre Lato; Muttola (Mottola) village, 1,270 feet above high water, 4 miles eastward of Castellaneta; and Massafra village, 361 feet above high water, 5 miles south-eastward of Mottola, are conspicuous from seaward.

**Secca Amerleia (Armeleja)**, about 3 miles eastward from Torre Lato and  $1\frac{1}{2}$  miles from the north shore, is a bank of rock and weed, about one mile long east and west, with from 9 to  $5\frac{1}{2}$  fathoms water, and from 14 to 16 fathoms around. The sea breaks on the bank during strong southerly winds, when it is advisable to pass well to seaward of it.

*Plan 1643, Taranto.*

35 **Punta Rondinella** (Lat.  $40^{\circ} 29' N.$ , Long.  $17^{\circ} 11' E.$ ) is the south-western extreme of a low projection, and there is a square tower on it. A bank with shoal water extends upwards of a mile off the coast for 2 miles north-westward of the point, and westward of the point are some small patches with from  $2\frac{1}{2}$  to  $4\frac{1}{4}$  fathoms water; Capo San Vito lighthouse open southward of Isola San Pietro leads south-westward of the bank and patches. The tower on Casa Montello, about one mile north-eastward of Punta Rondinella, is white, high, slender, and conspicuous.

*General charts 198, 1440, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

**Mar Grande**, the outer harbour of Taranto, is a semi-circular indentation  $3\frac{1}{2}$  miles wide between Punta Rondinella and the promontory of Capo San Vito to the south-south-eastward, and it extends about  $3\frac{1}{2}$  miles east-north-eastward from Isola San Paolo in the entrance; it is protected from seaward by Isole San Pietro and San Paolo, with shoal banks, and is a spacious anchorage, open only to the south-westward, and available for vessels of any size. Mar Piccolo, the inner harbour, is connected with Mar Grande by a canal. 5

**Fortified port.**—Taranto is a fortified port. See Regulations, page 30. 10

**Isola San Pietro**,  $1\frac{1}{2}$  miles south-south-westward of Punta Rondinella, is about  $1\frac{1}{4}$  miles long east and west, with a greatest breadth of three-quarters of a mile, low, rocky, and irregular in outline; there are several houses and sheds on it. A rocky spit and shoal banks extend between Punta Rondinella and Punta lo Scanno, the north point of the island; the water between Isola San Pietro and Isola San Paolo, 6 cables south-eastward, is also shoal, and a bank with 6 feet and less water extends 2 cables off the south coast of San Pietro. 15 20

**Pier.**—A masonry landing pier (*Lat. 40° 27' N., Long. 17° 10' E.*) extends off the east coast of the island a little north-westward of a noticeable group of sheds; care is necessary in approaching it.

**Buoy.**—A mooring buoy lies about a cable eastward of the pier.

**Barriers.—Caution.**—A submerged mole extends between Punta Rondinella and Punta lo Scanno; a submerged mole extends between Isole San Pietro and San Paolo; there is no passage over these moles. 25

**Isola San Paolo** is about  $2\frac{1}{2}$  cables long east and west, half a cable broad, low, and surrounded by shoal water, which extends nearly a cable from the south coast, and about 2 cables from the north-west point. There is a little port in the middle of the north coast of the island, protected by two small moles; it has depths of about 2 fathoms, the deepest part being near the eastern mole, which is the longer of the two; the port is used by tugs and naval boats. 30 35

**LIGHT.**—A light is exhibited, at 52 feet above high water, from an iron trellis frame on a masonry building, 42 feet high, on the east end of Isola San Paolo.

**The shore** of Mar Grande from Punta Rondinella trends eastward  $1\frac{1}{4}$  miles to the mole of Porto Mercantile. A small pier for boats extends from the shore about 4 cables eastward of Punta Rondinella. 40

*General charts 198, 1440, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

Isolotto San Nicolicchio, near the shore, three-quarters of a mile eastward of Punta Rondinella, is small, and not noticeable.

- 5 The shore from Porto Mercantile curves southward and south-westward about 6 miles to Capo San Vito.

**Capo San Vito** (*Lat. 40° 25' N., Long. 17° 12' E.*) is low; there is a square tower on it.

- 10 **LIGHT.**—A light is exhibited, at 150 feet above high water, from an octagonal tower on a white house, 140 feet high, on Capo San Vito.

- Signal station.**—There is a semaphore, 46 feet above high water, westward of the light-house on Capo San Vito. It is open both by day  
15 and at night.

**Secca San Vito** extends west-north-westward about a mile from the coast three-quarters of a mile north-westward of Capo San Vito lighthouse.

- 20 **Beacon.**—An iron truncated pyramidal beacon stands on the western end of Secca San Vito. A light is to be exhibited from the beacon.

- Barrier.—Caution.**—A mole, about 3 feet under water, extends along Secca San Vito between the coast and the beacon; there  
25 is no passage over it.

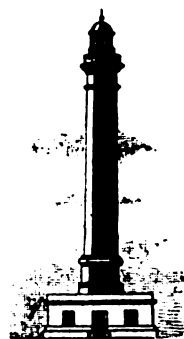
**The entrance** to Mar Grande, between Isola San Paolo and the beacon on the western end of Secca San Vito, is about three-quarters of a mile wide, with depths of from 5 to 20 fathoms.

- Depths.**—The depths in Mar Grande decrease from about  
30 20 fathoms in the middle of the entrance to about 12 fathoms near the town.

- The north and north-western sides of the anchorage are shallow, there being 4 and  $4\frac{1}{2}$  fathoms in the greater portion of the space westward of a line drawn from the east end of Isola San Paolo to the  
35 east end of Isolotto San Nicolicchio.

**Banco della Sirena**, 9 cables south-south-eastward from Isolotto San Nicolicchio, is  $3\frac{1}{2}$  cables long north and south, and  $1\frac{1}{2}$  cables broad, within the 5-fathom contour, and has a least depth of  $3\frac{3}{4}$  fathoms.

- 40 **Buoys.**—A cylindrical buoy, surmounted by an openwork cylinder, and painted black and white in horizontal stripes, is moored in 7 fathoms water on the southern side of the bank. Two calibrating buoys lie about  $3\frac{1}{2}$  cables westward of the bank.



Capo San Vito lighthouse.

*General charts 198, 1440, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

**Secca della Tarantola**, nearly  $1\frac{1}{2}$  miles south-eastward from Banco della Sirena, is  $3\frac{1}{2}$  cables long north and south, and  $1\frac{1}{2}$  cables broad, with  $1\frac{1}{2}$  fathoms least water; generally southward of a line between the beacon on the western end of Secca San Vito and the southern part of Secca della Tarantola there are depths of less than 5 fathoms with shoaler water in places; the northern and eastern sides of Secca della Tarantola are steep-to. 5

**Lights.**—A light is exhibited from an iron pyramid, painted with white stripes, on a framework, 35 feet high, in 2 fathoms water near the north end of Secca della Tarantola. 10

A light is exhibited, at 50 feet above high water, from a masonry beacon, surmounted by an iron staff with a flag, 38 feet high, on the beach on the south shore of Mar Grande about a mile north-eastward of Capo San Vito lighthouse. 15

These beacons in line,  $193^\circ$  true, lead through the middle of Passagio Piccolo.

**Buoy.**—A buoy, surmounted by an iron staff carrying a metal flag, is moored half a cable northward of the beacon on Secca della Tarantola. 20

**Pier.**—A small pier for the use of tugs extends nearly  $1\frac{1}{2}$  cables north-eastward from the shore about  $1\frac{1}{2}$  cables eastward of the light-beacon on the southern shore of Mar Grande. There are depths of 6 feet at a distance of 2 cables north-eastward of the pier.

**Pilotage.**—It is optional for vessels to take a pilot when entering or leaving Mar Grande. The pilots board arriving vessels at a distance not less than 3 miles from Capo San Vito lighthouse, and take out-going vessels to the south-westward of a line between San Paolo and San Vito lighthouses. The pilot charge for entering Mar Grande is 0.1 lire per ton register, with a minimum of 20 lire and a maximum of 80 lire; the charge for leaving is one-half of the above. The charge for shifting berth is 0.01 lire per net ton, with a minimum of 5 lire and a maximum of 30 lire. 25 30

**Directions.**—In entering Mar Grande, pass between Isola San Paolo and the beacon on the western end of Secca San Vito (*Lat.  $40^\circ 26' N.$ , Long.  $17^\circ 12' E.$* ), giving a berth of 2 cables to the island, and then steer direct to the anchorage. 35

**Anchorage.**—Merchant vessels anchor between lines joining Isola San Paolo and Castel Sant' Angelo, and Isola San Paolo and Isolotto San Nicolicchio. 40

*General charts 198, 1440, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

Vessels of war anchor between a line joining Isola San Paolo and Castel Sant' Angelo, and the alignment of the axis of the canal, leaving the approach to the canal clear, and between Secca della Tarantola and the town, in from 12 to 16 fathoms water; westward of the town, and in less than 12 fathoms water, are several patches of rocky ground.

**Prohibited anchorage.**—Anchorage is prohibited between lines from Punta Rondinella to Punta lo Scanno; from the south point of Isola San Pietro to the south point of Isola San Paolo; and from the east point of Isola San Paolo to the east point of Isolotto San Nicolicchio. Also between lines from the south point of Isola San Paolo to the light-beacon on the beach north-eastward of Capo San Vito; from that beacon to the light-beacon on Secca della Tarantola; and from this beacon to the south point of Isola San Pietro.

**Porto Mercantile**, north-westward of the town of Taranto, is protected by a mole which extends about  $2\frac{1}{2}$  cables southward from the coast 3 cables westward of the town; the entrance between the outer end of the mole and Batteria Carducci (*Lat. 40° 28' N., Long. 17° 14' E.*), at the west extreme of the town, is about 2 cables wide, with a depth of  $3\frac{3}{4}$  fathoms, and the port has been dredged to a depth of 3 fathoms; there are berths for one vessel of moderate size and one small vessel alongside the quay.

A mole is being constructed which will extend 240 yards south-westward from the south side of Batteria Carducci.

The Custom house and the railway station are situated in Borgo della Stazione, on the north shore of the port; the Health office is at Batteria Carducci.

**Lights.**—A light is exhibited, at 31 feet above high water, from a metal yard on an iron hut, 28 feet high, on the head of the western mole of Porto Mercantile.

A light is exhibited, at 21 feet above high water, from a post on the head of the eastern mole of Porto Mercantile, in course of construction.

**Buoys.**—A conical buoy lies near the head of the eastern mole under construction. There are two red mooring buoys in the port.

**The town of Taranto** (ancient Tarentum) stands at the head of Mar Grande, the old part being on an island situated between Mar Grande and Mar Piccolo.

The houses in the old town are of many stories, and close together with narrow, tortuous streets, except one, which leads from Ponte Napoli, the masonry bridge at the north-west end of the town, to the swing bridge

*General charts 198, 1470, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

at the south-east end. The campanile of the cathedral (San Cataldo) rises above the other buildings in the old town; Castel Sant' Angelo, at the south end of the town, is conspicuous, and dominated by a watch station and a large cylindrical iron reservoir. Borgo Nuovo, the new part of the town, extends eastward from the canal at the south-east end of the town, and has many large buildings with wide streets. The population was 70,381 in 1911. There is a British Vice-Consul at Taranto.

**Trade.**—Taranto has manufactories of linen and cotton; the exports in 1913 included liquorice, dried figs, and tinned tomatoes, and the imports iron, timber, cereals, coal, petroleum, cement, phosphates, and sugar.

**Shipping.**—In 1913, 54 steam vessels, of 76,002 tons, and 31 sailing vessels, of 5,965 tons, entered the port.

**Supplies.**—Provisions can be obtained. Water is brought from a considerable distance by an aqueduct which passes over Ponte Napoli. Merchant vessels can obtain water free at a fountain near the southern end of the bridge, and it is sent off to vessels at the anchorage in naval tank-boats, and pumped on board at 3 lire per ton.

**Coal** may be obtained, but a supply cannot be depended on. It is put on board from lighters by baskets, and 50 tons might be loaded hourly; there are numerous lighters of from 10 to 15 tons.

**Time signals.**—Two black cones, points together, are hoisted five minutes before the signal, at a signal staff on Castel Sant' Angelo (*Lat. 40° 28' N., Long. 17° 14' E.*), and dropped at noon standard time, or 23h. 00m. 00s. Greenwich mean time.

Should the signal fail or be inaccurate the cones will be hoisted half way up  $4\frac{1}{2}$  minutes, and lowered 15 minutes, after the time of the signal; the signal will then be made at 1h. 00m. 00s. standard time. Should the signal again fail, the cones will be hoisted half way up and lowered, as before, but no further signal will be made.

On festival days the cones are replaced by flag F, and the signal is made by hand.

A similar signal is made at the same time from a signal staff on the large building of the Direzione dell' Arsenale.

A gun at Castel Sant' Angelo is fired at noon standard time, by the same electric current which causes the cones to drop, except on festival days, when it is fired by hand.

**Hospitals.**—There is, at Taranto, a large and important naval hospital, and also a civil hospital, with about 100 beds, of which 20 to 25 are available for sick cases on payment of 1·5 lire daily for medical,

*General charts 198, 1440, 2158a and b, 449.*



*Plan 1643, Taranto. Var. 6° 10' W.*

and 2 lire for surgical, cases; it is necessary to pay for one month in advance, but on discharge the amount for the time not spent in hospital is returned.

- 5 **Communication.**—There is communication by steam vessels with Marseille, Genoa, Palermo, Brindisi, and Venice. There is railway communication with Naples, Reggio, Bari, Brindisi, Gallipoli, and Otranto.

- MAR PICCOLO** extends about  $4\frac{1}{2}$  miles eastward of the town, 10 with a breadth of nearly 2 miles, and is divided into two basins of unequal size by the peninsula terminating in Punta Penna (*Lat. 40° 28' N., Long. 17° 14' E.*), which projects about  $1\frac{1}{4}$  miles southward from the north shore. The depth in the western basin is, generally, from 6 to 7 fathoms, and in the eastern basin from  $3\frac{3}{4}$  to 15 5 fathoms; the shores, excepting in the vicinity of the arsenal, are bordered by banks with from 3 to 6 feet water, on which are large oyster grounds.

- Canals.**—Mar Grande communicates with Mar Piccolo by two canals; the canal north-westward of the town is very shallow, and 20 crossed by Ponte Napoli, of masonry arches on pillars. Passagio Piccolo (Canale dei due Mari), on the south-eastern side of the old town, is crossed by a swing bridge, 40 feet above the mean level of the sea in the middle; the canal is 400 yards long, 80 yards wide between the shores, and 64 yards wide between the pillars of the bridge, with a 25 depth of  $6\frac{1}{2}$  fathoms in the middle.

**Leading lights.**—The leading lights on Secca della Tarantola and the south shore of Mar Grande, are described on page 443.

- A light is exhibited, from an iron pyramid, painted with white stripes, on a framework, 34 feet high, situated in  $5\frac{1}{2}$  fathoms water in 30 the western basin of Mar Piccolo, about  $8\frac{1}{2}$  cables northward of the canal entrance.

- A light is exhibited, at 71 feet above high water, from a masonry pillar on a rectangular base, 32 feet high, and painted black and white in vertical stripes, the upper part black, and surmounted by a staff 35 with a flag, on the north-west shore of Mar Piccolo, near Casa Troilo.

These lights in line,  $13^\circ$  true, lead through the middle of the canal.

- Lights.**—When a vessel is going to pass through the canal at night it is lighted by six electric arc lights, two on the central faces of the pillars which support the bridge, and one on each side of both 40 entrances, but for local vessels it is lighted by eight incandescent electric lights.

*General charts 198, 1440, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

**Tidal streams.**—The tidal streams are fairly strong in the canal, and when passing through with the stream, keep the vessel exactly in the middle, as there appear to be strong eddies near the pillars of the bridge. The signal station at Castel Sant' Angelo will hoist, by day, flag F while the stream is running northward through the canal, and flag C while it is running southward. 5

**Signals and rules.**—Passagio Piccolo is reserved exclusively for military purposes; no traffic is allowed on its quays, and it is used by Italian vessels of war or merchant vessels carrying Government stores, but under certain circumstances the Naval Commandant can permit other vessels to pass through. 10

Foreign vessels of war must obtain Ministerial sanction to enter, but in case of emergency this may be dispensed with.

The bridge across the canal will be opened for Italian vessels of war by signal during the times specified below, but in other cases the sanction of the Naval Commandant is necessary:— 15

From 7-55 a.m. to 8-20 a.m.; 9-5 a.m. to 10-5 a.m.; 10-55 a.m. to 1-10 p.m.; 1-55 p.m. to 3-0 p.m.; 4-5 p.m. to 5-25 p.m.; 6-5 p.m. to 7-5 p.m.; 8-0 p.m. to 9-0 p.m.; and 10-15 p.m. to 3-45 a.m. 20

From 5-25 p.m. to 7-55 a.m. a request to open the bridge must be sent to the Naval Commandant.

Vessels about to pass through the canal must hoist the signal J.F.R. (open the bridge). A black ball hoisted at the signal station indicates that preparations are being made for opening the bridge, if the request has been made during the hours specified in the timetable. 25

While the bridge (*Lat. 40° 28' N., Long. 17° 14' E.*) is being opened, the black ball is lowered to half-mast, and when the passage is clear it will be lowered and flag H. hoisted at the yardarm at the signal station. Should any accident prevent the bridge from being opened the ball will be re-hoisted at the signal station, and, if necessary, the duration of the interruption signalled by International code. 30

If the request is made whilst the bridge usually remains closed, the time at which it can be opened will be indicated by International code. 35

A cylinder hoisted at the signal station indicates that the canal is clear for vessels entering Mar Piccolo, and a pyramid that it is clear for vessels leaving Mar Piccolo.

When two vessels request that the bridge may be opened at the same time, one from Mar Piccolo and the other from Mar Grande, the outgoing vessel will pass through first and then the other will enter. 40

The flagship in Mar Grande will communicate by signal with vessels desiring to leave Mar Piccolo.

*General charts 198, 1440, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

Craft entering Mar Piccolo from Mar Grande should navigate at a short distance from the west bank of the canal; those going from Mar Piccolo to Mar Grande should navigate at a short distance from the east bank.

No craft navigating the canal, or the vicinity of its entrances, may pass another ahead.

Large vessels passing through the canal should proceed at a rate of 6 knots; a rate of 8 knots must not be exceeded.

Motor craft should go at a moderate speed in the canal.

At night, when the passage is clear, a rocket, showing *green, red, green, white* sprays, will be fired.

**Dockyard.**—The naval dockyard and arsenal are situated eastward of Borgo Nuovo on the south shore of Mar Piccolo.

A mole (*Lat. 40° 28' N., Long. 17° 15' E.*) extends about 100 yards northward from the shore 4 cables eastward of the entrance to the canal, and a mole extends 200 yards eastward from a point 3 cables further eastward; this mole forms the northern side of a port in which there are  $5\frac{3}{4}$  fathoms water, and at the head of which are the docks and principal workshops, with a 160-ton crane.

**Lights** are exhibited from the heads of the moles just mentioned.

A square beacon of wooden piles, surmounted by a staff and globe, stands on the extreme of the bank south of Punta Penna, and a light is exhibited from it. A square beacon of wooden piles stands on the extreme of the spit eastward of the point.

A light is exhibited from the western of two piers at Buffoluto, on the west shore of the eastern basin.

**Buoys.**—A yellow cylindrical mooring buoy, for the stern fast of the flagship lies a little north-eastward of the inner eastern entrance point of the canal. Two small mooring buoys for tugs lie north-westward of the canal entrance.

Fifteen mooring buoys, marked I. to XV., lie in the western basin of Mar Piccolo.

A green warping buoy is moored near the coal wharf, eastward of the mole extending northward from the south shore.

Five buoys for adjusting compasses are moored in the northern part of the western basin.

Five mooring buoys lie off the dockyard port.

Two mooring buoys lie off Buffoluto.

A central buoy, with four piles around, is placed in the eastern part of the eastern basin for adjusting compasses.

**Pilotage** is compulsory for merchant vessels authorised to enter or leave Mar Piccolo. Sailing vessels should be towed through the

*General charts 198, 1446, 2158a and b, 449.*

*Plan 1643, Taranto. Var. 6° 10' W.*

canal. The captain of a merchant vessel entering Mar Piccolo must request a pilot from the Captain of the Port, who will inform him of the time when he should be ready to move.

The pilotage charges for the transit of the canal, both on entering and leaving, are 0·1 lire per register ton, with a minimum of 20 lire and a maximum of 80 lire; the charge for shifting berth in Mar Piccolo is 0·01 lire per net ton, with a minimum of 5 lire and a maximum of 30 lire.

**Anchorage.**—Merchant vessels anchor in Mar Piccolo, westward of the line of the canal.

**Springs of fresh water.**—There are some springs of fresh water, which rises from the bottom, in both Mar Grande and Mar Piccolo. The principal one in Mar Grande lies off the entrance to Porto Mercantile; the water rises from this spring with force, and forms whirls at the surface, so that the position is marked when the sea is smooth. In Mar Piccolo, the principal springs are in the northern part of the western basin, and in the eastern part of the eastern basin (*Lat. 40° 29' N., Long. 17° 19' E.*).

**Caution.**—Oysters and other shell fish are extensively reared in Mar Piccolo and exported to Naples; serious cases of illness have occurred through eating them when out of season.

**Winds.**—In winter, north-west to north-east and south-east winds prevail. North-easterly winds blow sometimes with great violence, and render communication with the shore difficult, even in Mar Piccolo. Generally, northerly winds last several days; they decrease, or become calm, during night and the early hours of the morning, but blow with violence during the rest of the day. South-westerly winds send a considerable sea into Mar Grande, and generally raise the level of the water. South-easterly winds, especially in winter, blow violently and are troublesome in Porto Mercantile, but do not raise a heavy sea in Mar Grande; they are accompanied by rain and thick weather, especially in May and June, and veer to south-west and west. In spring Taranto is subject to strong westerly winds, called *cosidetti*, which are of short duration and cease at sunset.

North-easterly winds are indicated by a belt of clouds which forms on the hills northward of Mar Piccolo, and remains whilst the winds last, generally for some days, the Calabrian coast being clear. South-easterly winds are indicated by a sensible rise in the level of the water.

**Currents.**—The currents off Mar Grande set westward; they are usually weak, and only felt during strong easterly winds.

*General charts 198, 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 10' W.*

**The coast** from Capo San Vito (*Lat. 40° 25' N., Long. 17° 12' E.*) trends east-south-eastward 15 miles to Capo dell' Ovo, and is generally low, rocky, and much broken; a bank with  $2\frac{1}{2}$  fathoms water lies  
 5 about  $3\frac{1}{2}$  cables off the coast three-quarters of a mile eastward of Capo San Vito, and a bank with  $3\frac{1}{2}$  fathoms water, about 4 cables off the coast, one mile further south-eastward.

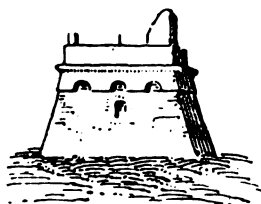
The hills of Roccaforzata attain a height of 1,463 feet about 8 miles eastward of Capo San Vito. There are towers on most of the points,  
 10 and small coves, suitable for boats and coasting vessels, along the coast. Porto Tramontana (Porto Jannole), the largest of these, is about  $4\frac{1}{2}$  miles from Capo San Vito. Leporano village, about  $1\frac{1}{2}$  miles eastward of Porto Tramontana, is 157 feet above high water, and has a castle with a pillar on it.

15 Torre Castelluccia (Castelluccio), on the coast  $4\frac{1}{2}$  miles south-eastward of Porto Tramontana, is 72 feet high, painted black and white in horizontal stripes, and surmounted by a pillar.

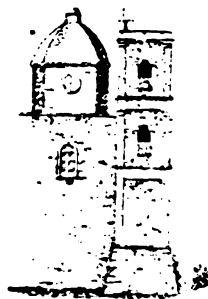
Torre Sassoli, on the coast about a mile south-eastward of Torre Castelluccia, and situated on a flat and rocky point, is low. Between  
 20 this tower and Capo dell' Ovo, a bank, with shoal water in places, extends about half a mile off the coast.

Fragagnano village, about 7 miles north-north-eastward of Torre Sassoli, shows a large white cupola behind a large dark stone building. Lizzano, nearly midway between the tower and Fragagnano, has white  
 25 houses.

**Measured distance.**—A distance of 19,369 feet has been measured south-eastward of Capo San Vito. The running line is Torre San Vito in line with Isola San Paolo lighthouse, 323° true; the western limit is a pillar on the tower of Castello di Leporano in  
 30 line with a pillar on Castello di Roccaforzata; and the eastern limit is the middle of Torre Castelluccia in line with a pillar on the campanile



Torre San Vito.



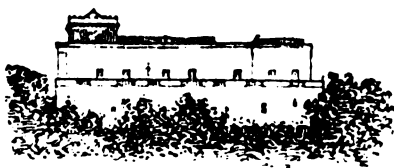
Fragagnano—pillar on campanile of church.

*General charts 1449, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 0' W.*



Torre Castelluccia.



Castello di Leporano ; pillar on tower.



Castello di Roccaforzata.

of Fragagnano church. The depths on the course are from 124 to 147 fathoms.

**Capo dell' Ovo** is low, sandy, and wooded ; Torre dell' Ovo, on the cape, is 33 feet high, and surmounted by a white house and flag-staff. A low rock, about a cable long, extends south-westward from near the coast, about 3 cables north-westward of the tower. 5

**Secca Torre dell' Ovo**, with  $3\frac{1}{4}$  fathoms water, lies about 14 cables south-eastward of the tower, and is the southern part of a shoal bank extending from the cape. 10

**The coast** from Capo dell' Ovo (*Lat. 40° 18' N., Long. 17° 31' E.*) trends eastward 15 miles to Torre Lapilla, and is generally low and rocky, with some short sandy beaches, and bordered by a rocky bank, which extends off about half a mile. Several towers, almost all square, stand on the coast ; the climate generally is unhealthy. 15

*General charts 1440, 2158a and b, 449.*

*Chart 198, Policastro to Cape Sta. Maria di Leuca. Var. 6° 0' W.*

**Anchorage.**—There is anchorage during fine weather off Torre dei Molini, 2 miles eastward of Capo dell' Ovo, the air here being less bad than elsewhere in the locality. Fishing vessels anchor eastward of Torre Colimena, which is situated on a small point about 8 miles eastward of Torre dei Molini.

*Chart 2701, Gulf of Cattaro to Corfu.*

**The coast** south-eastward of Torre Lapilla, which is near the sea, forms three contiguous bights. Porto Lapillo, the first, situated between Torre Lapilla and Torre Chianca, affords moderate shelter for small vessels in depths of from  $1\frac{1}{2}$  to 2 fathoms, but the holding ground is bad, and it is seldom visited. The central bight is not available for vessels.

**Porto Cesareo** (*Lat. 40° 15' N., Long. 17° 54' E.*), the third bight, lies between Torre Cesareo (Cesarea) and Torre Pianuri or Squillace. From near the last tower a low tongue of land, called La Strega, extends north-westward, and protects the water inside it, as well as making Porto Cesareo a safe anchorage for small vessels, with winds from any direction. Scoglio Capparone lies at the north end of La Strega; it is low and flat, and is left about half a cable to the southward when entering. The port is marked by the conspicuous white building, 92 feet above high water, of La Salmenta farm, and by Torre Cesareo, which is square, and surrounded by groups of low white houses. The depths in the port, the entrance to which is very narrow, are from about one to 2 fathoms, except in the south-eastern part, which is filled with sand. The sea breaks at the entrance to the port with south-westerly winds.

The islets, which lie north-westward of the port, are bordered by rocks on their south and south-west sides.

**Leading lights.**—A light is exhibited, at 11 feet above high water, from a masonry hut, 13 feet high, and painted white with a red vertical stripe, nearly 4 cables eastward of Torre Cesareo.

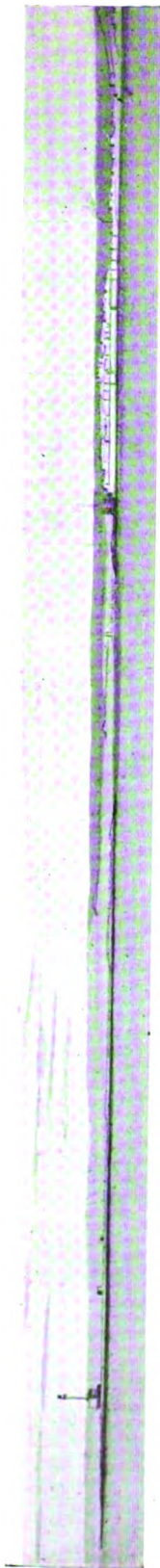
A light is exhibited at 43 feet above high water from a masonry column, 13 feet high, and painted white with a red vertical stripe, situated 853 yards,  $34^{\circ}$  true, from the preceding light.

The red stripes by day, and the lights at night, in line, lead into the port.

**The coast** from Porto Cesareo trends southward  $12\frac{1}{2}$  miles to Gallipoli, and is rocky and sandy at intervals, rising to wooded land of moderate height. There are several coves on the coast, but none of any importance.

**Tunny fishery.**—Tunny nets are laid out about a mile westward, with a width of  $1\frac{1}{2}$  cables, from near Torre Pianuri, about

*General charts 198, 1440, 2158a and b, 449.*



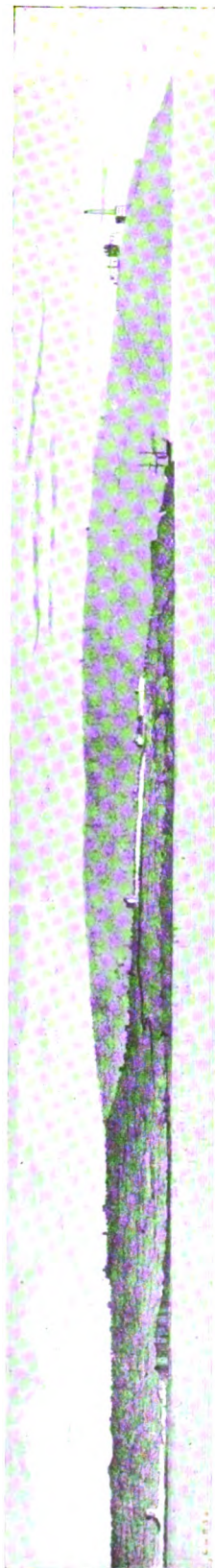
*Lighthouse bearing 46° true.*

*Iola Sant' Andrea.*

**Gallipoli.**

*Torre Suben.  
Scoglio Campo.*

*Gallipoli.*



*Torre San Gregorio.*

**Capo Santa Maria di Leuca.**

*Punta Ristola.*

*Lighthouse bearing 76° true, 3 miles.  
Capo S. Maria di Leuca.*





*Chart 2701, Gulf of Cattaro to Corfu. Var. 5° 50' W.*

1½ miles south-eastward of the entrance to Porto Cesareo; the nets are marked by a boat with a mast surmounted by a cone by day and by two lights placed vertically, the upper *white* and the lower *green*, at night. 5

**The coast.**—Torre Inserraglio (*Lat. 40° 11' N., Long. 17° 56' E.*), 3½ miles southward of Torre Pianuri, appears white from seaward. Seno di Santa Caterina, 8 miles south-south-eastward of Porto Cesareo, affords anchorage in 3 fathoms water, sand bottom, sheltered from winds from north-west, through north, to east-south-east. 10

Madonna dell' Alto, a group of houses on a little hill, 246 feet high, northward of the bight; Torre Santa Caterina, and the houses at the head of the bight, are good marks. A rock, with 6 feet water, lies near the north point of the bight.

Nardò, a large village, lies 3 miles north-eastward of Santa Caterina, 15 and there is a good road between them.

Santa Maria del Bagno is the bight immediately southward of Santa Caterina, and at its head is a village, much frequented for bathing in summer. Anchorage can be obtained in about 4½ fathoms, sand, in the middle of the bight, and just within the line joining the entrance 20 points.

Torre Fiume, called locally Torre a quattro colonne, behind Bagno bight, is noticeable, and about a mile from it is Torre d'Alto Lido, 230 feet above high water, and erected on a rough and relatively high rocky cliff. 25

Small vessels can obtain shelter from strong off-shore winds anywhere off this coast, near the 5-fathom line, but it is better to avoid doing so, especially near Torre Sabea, about 3½ miles southward of Santa Caterina, on account of the malaria.

*Plan 204, Gallipoli harbour.*

**GALLIPOLI** (ancient Callipolis), an old walled town, is situated on a rocky island 3 cables in extent, connected to the mainland by a long stone bridge. An old castle lies in the eastern part of the old town, and eastward of the bridge is the Borgo, the new part of the town; view at page 452. The population was 11,460 in 1911. 30 35

**Porto.**—The port, open to the eastward, is protected by a detached mole, which extends 335 yards east-north-eastward, its south-western end being connected by a bridge, 77 yards long, to the north extreme of the island, on which is the town. Quays extend along the north coast of the island, but the depths in the port decrease 40 from 6½ fathoms near the molehead to 1½ fathoms and less near the quays. Steam vessels in the port generally moor head to north-north-east with a stern hawser to the shore.

*General charts 2701, 198, 1440, 2158a and b, 449.*

*Plan 204, Gallipoli harbour. Var. 5° 50' W.*

- Works are in progress for extending the mole, and are marked by buoys and two red piles projecting above water. A buoy, with a wooden superstructure, and surmounted by a red metal flag, is moored about 165 yards east-north-eastward from the lighthouse on the end of the mole, and marks the extreme of the works.

**Secca del Rafo**, about 2 cables northward from the head of the mole, is a little more than half a cable in extent, with  $1\frac{1}{4}$  fathoms water, rock bottom.

- LIGHTS.**—A light is exhibited, at 36 feet above high water, from a circular white tower, 32 feet high, on the east end of the mole.

A light is exhibited, at 32 feet above high water, from an iron framework beacon on the southern end of Secca del Rafo.

- Scogli Campo and Piccioni**, 13 feet high, together with some smaller rocks, lie from one to  $1\frac{1}{2}$  cables westward and south-westward of Gallipoli, on the outer extreme of an extensive bank. The passage inside the rocks is only practicable by small boats.

- Isola di Sant' Andrea**, 6 cables west-south-westward of Scoglio Campo (*Lat. 40° 3' N., Long. 17° 59' E.*), is about half a mile in extent, and so low that with strong south-easterly winds the seas completely invade it. It is surrounded by a shoal bank, which extends over half a cable off in places. A reef, named Rafo di Sant' Andrea, with  $1\frac{1}{4}$  fathoms least water, lies half a cable off the south-east coast of the island.

- The passage between Scogli Campo and Piccioni and Isola Sant' Andrea is nearly 6 cables wide, with from 7 to 8 fathoms water, and quite clear.

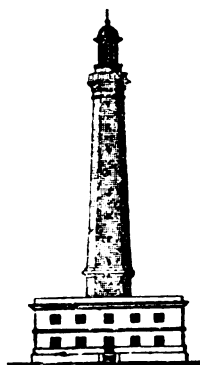
- LIGHT.**—A light is exhibited, at 149 feet above high water, from a white octagonal tower on a white two-storied house, 141 feet high, on the south-west extreme of Isola Sant' Andrea.

Signals for assistance are made from the lighthouse. See page 34.

- Pilotage.**—The pilotage charges are: For vessels not over 100 tons, 25 lire; from 100 to 200 tons, 30 lire; from 200 to 300 tons, 35 lire; from 300 to 400 tons, 40 lire; from 400 to 500 tons, 45 lire; from 500 to 600 tons, 50 lire; from 600 to 700 tons, 55 lire; from 700 to 800 tons, 60 lire; from 800 to 900 tons, 65 lire; and over 900 tons, 70 lire. Vessels taking a pilot both on arriving and leaving pay only half the charge for leaving.

**Tunny fishery.**—Tunny nets extend  $11\frac{1}{2}$  cables north-westward, with a breadth of  $2\frac{3}{4}$  cables, from the coast nearly half a mile east-

*General charts 2701, 198, 1440, 2158a and b, 449.*



Isola Sant' Andrea lighthouse.

*Plan 204, Gallipoli harbour. Var. 5° 50' W.*

ward of the Port office; the nets are marked by a boat with a mast surmounted by a cone, and a *white* light at night.

**Anchorage.**—The anchorages of Gallipoli northward and southward of the town, are useful for vessels of any size, caught by bad weather in Golfo di Taranto. The anchorage northward of the town is sheltered except from north-westerly and westerly winds, which send in a heavy sea; a good berth is with the Port office, which is an isolated building at the eastern end of the bridge between Gallipoli and Borgo, bearing 180° true, and the mole lighthouse in line with the north-west extreme of Scoglio Campo, in  $7\frac{1}{2}$  fathoms water; towards the shore the holding ground is bad. There is anchorage with northerly winds in the bay, named Canneto, southward of the town; anchor with the Port office bearing 0° true, when some white houses will be in line with it, and the north-eastern extreme of Scoglio Campo in line with the south-western extreme of the town, in 9 fathoms water, sand.

**Winds.**—Northerly, north-easterly, and south-easterly winds prevail, the last being accompanied by a heavy sea. Southerly winds are indicated by a long swell from the southward, which commences during a calm or northerly winds.

**Currents.**—The currents depend on the winds.

**Trade.**—The principal products of Gallipoli (*Lat. 40° 3' N., Long. 17° 59' E.*) are oil and wine. The chief imports are petroleum, pulse and rice, and timber, and the exports figs, olive oil, and timber. In 1912 the value of the imports was £24,799, and that of the exports £125,078.

**Shipping.**—In 1913, 367 steam vessels, of 266,392 tons, entered and cleared, and 183 sailing vessels, of 15,993 tons, entered the port.

**Supplies.**—Fresh provisions can be procured, but there is no coal. Water can be obtained from a fountain, with several jets, southward of the Port office, using barrels.

**Communication.**—Gallipoli is the terminus of the Brindisi and Gallipoli railway; steam vessels run to Genoa, Palermo, Brindisi, and Venice; also to Taranto and Marseille.

*Chart 2701, Gulf of Cattaro to Corfu.*

**The coast.**—Between Gallipoli and Punta Pizzo,  $3\frac{1}{4}$  miles to the southward, is a sandy bay; on its north-eastern shore is Torre San Giovanni.

**Punta Pizzo**, on which is a circular tower, advances decidedly north-westward; it is rocky and a spit extends a short distance north-

*General charts 2701, 198, 1440, 2158a and b, 449.*

*Chart 2701, Gulf of Cattaro to Corfu. Var. 5° 50' W.*

westward from it, the 5-fathom line being half a mile from the point. Small vessels shelter from southerly winds north-eastward of the point.

- 5 The coast from Punta Pizzo trends south-eastward 21 miles to **Capo Santa Maria di Leuca**; from the point to Scoglio Pozza (Pazzi), a distance of 8 miles, the land is moderately high and the coast rocky; Scoglio Pozza is above water, and a cable off-shore.

- 10 Torre Suda, on the coast  $3\frac{1}{2}$  miles south-eastward of Punta Pizzo, is 30 feet above high water, and white; there is a group of houses a short distance northward of it. Torre Sonfino (Sinfono), about  $2\frac{1}{2}$  miles further south-eastward, is 30 feet above high water.

- 15 The coast from abreast Scoglio Pozza is low and sandy one mile to a rocky point surmounted by Torre San Giovanni, which is large, with its upper part white. About  $1\frac{1}{2}$  cables south-eastward of the tower, a line of rocks commences and extends about 6 cables about a cable off the coast; from seaward it shows seven rocks, the largest of which is named Scoglio Tondo from its rounded top. A good road leads from Torre San Giovanni to Ugento, a village  $3\frac{1}{2}$  miles north-eastward, and 354 feet above high water, which is conspicuous from seaward.

- 20 The coast from Torre San Giovanni rises in sandy hillocks south-eastward to Torre Mozza, distant 3 miles, which is slightly conical and isolated; it then becomes higher and rocky to Capo Santa Maria di Leuca.

- 25 **Secche di Ugento.**—A bank of foul ground extends off the coast between Torre San Giovanni and Torre Pali (*Lat. 39° 50' N., Long. 18° 13' E.*),  $5\frac{1}{2}$  miles south-eastward, and it reaches a distance of 2 miles south-south-westward of Torre Mozza, terminating in two large rocks awash, named Giumenta and Cavallo, and forming altogether Secche di Ugento.

- 30 Secca Palombaro, with 2 feet water, lies on the bank about one mile south-westward of Torre Mozza. La Giurlita is a rock above water, about half a mile north-westward of Secca Palombaro; over other parts of the shoal are depths of from  $1\frac{1}{4}$  to  $3\frac{3}{4}$  fathoms. The 20-fathom contour line is about 6 miles south-westward from Torre Mozza.

**Light-buoy.**—A red cylindrical iron light-buoy, surmounted by a staff, is moored near the south extreme of Secche di Ugento, and exhibits a *white flashing light every six seconds, flash six-tenths of a second.*

- 40 **Clearing marks.**—Isola Sant' Andrea lighthouse well open westward of the coast to the southward, or Torre Pizzo, open westward of Torre Suda, about 332° true, leads westward, and Salve village open southward of Torre Pali, about 68° true, leads southward of Secche di Ugento.

*General charts 198, 1860, 1440, 2158a and b, 449.*

*Chart 2701, Gulf of Cattaro to Corfu. Var. 5° 40' W.*

At night, the lights of Isola Sant' Andrea and Capo Santa Maria di Leuca are obscured over the bank, but it is stated that the lights have been seen from the bank, therefore these obscurations must not be trusted, and vessels must verify their positions by bearings of the lights. 5

In thick weather the bank should not be approached to less than 16 fathoms water.

**The coast.**—Torre Pali is on the south-eastern end of a rocky tongue of land, with a white square house westward of it. 10

Scoglio la Fanciulla, westward of the tongue of land just mentioned, is low, broken, and dark in colour.

Torre Vado, 3½ miles eastward of Torre Pali and near the beach, is cylindrical, and there are seven or eight houses behind it. A bank, with from one to 2 fathoms water, extends three-quarters of a mile off the coast between Torri Vado and Pali; its outer edge is steep-to. 15

The coast from Torre Vado trends south-eastward 4 miles to Punta Ristola.

Torre San Gregorio, about 2 miles from Torre Vado and on a hill, 108 feet high, is of the same colour as the coast, and there is a small white house south-eastward of it; the tower is not conspicuous, and at the distance of a few miles is difficult to distinguish. 20

A rock, almost awash, lies near the southern point of the little promontory on which is the tower.

*Plan, Santa Maria di Leuca anchorage, on 198.*

**Punta Ristola** (Lat. 39° 47' N., Long. 18° 21' E.) is the extreme of a small peninsula, which projects about a cable southward from the coast. Banco la Scala, with from 6 to 13 fathoms water, rock bottom, extends about 1½ miles south-south-eastward from the point, and a short distance off Capo Santa Maria di Leuca; it is frequented by fishing boats. 25 30

**Anchorage.**—The anchorage of Santa Maria di Leuca is in the small bay lying between Punta Ristola and Punta Meliso, nearly a mile to the eastward and about a cable westward of Capo Santa Maria di Leuca. The anchorage is safe with winds from north-west to north-east, and is frequented by vessels which, owing to strong northerly winds, are unable to enter the Adriatic; it is necessary to keep ready to leave on the first indication of southerly winds. The best position is midway between the entrance points and off Casine di Leuca, in about 8 fathoms water, sand bottom. When a strong bora (northerly wind) is blowing, the squalls in the anchorage are very violent, and a vessel should have a long scope of cable out. 35 40

**Capo Santa Maria di Leuca** (ancient Salentinum prom.) is the eastern point of Golfo di Taranto, and the western point of the

*General charts 2701, 198, 1800, 1440, 2158a and b, 449.*

*Plan, Santa Maria di Leuca anchorage on 198. Var.  $5^{\circ} 40'$  W.*

entrance to the Adriatic. Its summit is about 460 feet high, whence it slopes to the sea, and is well marked by the lighthouse and the sanctuary of Santa Maria di Leuca, a large house northward of the  
 5 lighthouse. View at page 452. At times it is enveloped in dense clouds, and a vessel, bound northward in the Adriatic, not being able to make the cape, should approach and sight the high land of Capo Linguetta, on the coast of Albania.

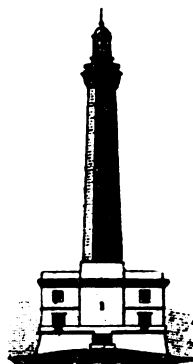
**LIGHT.** — A light is exhibited, at 335 feet  
 10 above high water, from a white octagonal tower on a white two-storied house, 159 feet high, on the cape (*Lat.  $39^{\circ} 48'$  N., Long.  $18^{\circ} 22'$  E.*).

**Signal station.**—There is a semaphore at  
 15 La Guardia, about  $1\frac{1}{2}$  miles north-westward of the lighthouse, the tower of which is 384 feet above high water, and painted black and white in chequers.

**Currents.**—The inshore currents around  
 20 the cape are variable; the off-shore current generally sets southward along the western shore of the Adriatic, and sometimes turns westward around the cape; this current may set on Secche di Ugento, and should be guarded against.

**The coast** northward of Capo Santa Maria di Leuca is described  
 25 in Mediterranean Pilot, Vol. III.

*General charts 2701, 198, 1800, 1440, 2158a and b, 449.*



Capo Santa Maria di  
Leuca lighthouse.

## APPENDIX I.

## PARTICULARS OF DRY DOCKS, PATENT SLIPS, &amp;c.

Port.	Name of Dock.	Length.		Breadth of Entrance.	Depth at M. H. W. S.		Springs Rise.	Lifting Power.	Date Built.	Remarks.
		On Blocks.	Over all.		On Sill.	On Blocks.				
Marseille	No. 1.....	Feet 517	Feet 504	Feet 74½	Feet 26½	Feet 24½	Feet —	Tons —	—	These docks are entered from Bassin des Réparations à flot, the entrance to which from Bassin National is 92 feet wide, and 26½ feet deep, but is being dredged to 31 feet.
	" 2.....	257½	300½	67½	23½	20½	—	—	—	
	" 3.....	231½	205½	49½	23½	20½	—	—	—	
	" 4.....	231½	205½	49½	23½	20½	—	—	—	
	" 5.....	388½	426½	50	23½	23½	—	—	—	
	" 6.....	388½	426½	50	23½	23½	—	—	—	
	" 7.....	643	690½	82	31	31	—	—	1912	
La Ciotat	Messageries Maritimes	495½	528½	42	21½	17—20½	—	—	—	Four docks are building in Darse Neuve, each 689 feet long with 36 feet water on the sill; the approaches are to be dredged to 42 feet. Can be divided into two sections, each 266 feet long. Is to be enlarged.
Toulon	Vauban, No. 1.....	199	249½	57½	20½	—	—	—	—	
	" 2.....	195½	245½	58½	21½	—	—	—	—	
	" 3.....	206½	262½	69½	25½	—	—	—	—	
	Castignean, No. 1 ..	—	300½	69½	30	—	—	—	—	
	" 2 ..	308½	387½	75½	31	—	—	—	—	
	" 3 ..	512	534½	77½	31	—	—	—	—	
	Missessy, No. 1 ....	—	656	98½	34	—	—	—	—	
Villefranche	" 2 .....	—	656	98½	34	—	—	—	1898	
	" 3 .....	557½	574	98½	34	—	—	—	—	
	—	—	197	28	9½	—	—	—	—	
Ajaccio	Patent Slip .....	18	—	16 (cradle)	—	—	—	—	—	
Bonifacio	Floating .....	—	—	—	—	—	—	500	—	



PARTICULARS OF DRY DOCKS, PATENT SLIPS, &c.—*continued.*

Port.	Name of Dock.	Length.		Breadth of Entrance.	Depth at M.H.W.S.		Springs Rise.	Lifting Power.	Date Built.	Remarks.
		On Blocks.	Over all.		On Sill.	Feet				
Genoa .....	Bacino di Darsena ..	Feet 259	Feet 294	Feet 70	Feet 19½	Feet —	Feet —	Tons —	—	Breadth can be increased 3 ft.
	Bacino, No. 1 .. {	524½	541½	82	31	32½	—	—	1892	
	" " 2 .. {	547½	564	Caisson in outer stop.	27½	29½	—	—	1892	
	Floating .....	656	679	Caisson in outer stop.	19½	—	—	2,900	1899	
Spezia .....	Government, No. 1..	—	361	75	27½	—	—	—	—	For submarines.
	" " 2..	—	433	82	26	—	—	—	—	
	" " 3..	—	433	82	26	—	—	—	—	
	" " 4..	—	361	75	29½	—	—	—	1890	
Leghorn .....	" " 5..	—	705	106	33	32½	—	—	1899	Can be divided into two, the outer 394 feet, and the inner 328 feet long. Building, but probably completed.
	" " 6..	490	504	90½	33	—	—	500	—	
	Floating Dock " ..	—	226½	—	36	—	—	—	—	
	Bacino di Carenaggio Patent Slips, Nos. 1 and 2.	436 250 (cradle)	446 —	69 27 (cradle)	23 Forward Aft	20½ 21 24	—	1,500	—	
Naples .....	Government .....	239	246½	63	22	—	—	—	—	Can be divided into two, the outer 394 feet, and the inner 328 feet long. Building, but probably completed.
	Bacino di Carenaggio, No. 1.	665½	676½	92½	33½	27½	—	—	—	
	Bacino di Carenaggio, No. 2.	371½	379½	57½	23½	22½	—	—	1907	
	Principe di Napoli ..	—	722	100	33	31½	—	—	1890	
Taranto .....	Dock, No. 1 .....	771	784½	118½	39½	—	—	—	—	Can be divided into two, the outer 394 feet, and the inner 328 feet long. Building, but probably completed.
	Floating, No. 1 .....	807	820½	Caisson in outer stop.	25	—	—	4,500	—	
	" " 2 .....	—	365	61	—	—	—	1,200	1911	
	" " 3 .....	—	—	—	—	—	—	—	—	

## APPENDIX II.

LIST OF PRINCIPAL PORTS, SHOWING PARTICULARS  
OF DEPTHS, &c.

Port.	Depth at M.L.W.S. in channel of approach.	Depth at M.L.W.S. in anchorage.	Rise of Tide.		Remarks.
			Spgs.	Nps.	
Ajaccio .....	Deep water ..	3½ to 12 fms.	—	—	
Bastia .....	Deep water ..	18 to 22 fms.	—	—	Outer anchor-
	5½ to 9 fms.	11 to 49 feet	—	—	age. Port Saint Nicolas, alongside quays.
Cette .....	24 feet .....	23 feet	—	—	L'Avant port.
Civita Vecchia .....	26 feet .....	20 to 26 feet	—	—	
Ferrajo .....	Deep water ..	8 to 10 fms.	—	—	Outer anchor-
	31 feet .....	7 to 8 fms.	—	—	age. Inner anchor-
Gaeta .....	Deep water ..	8 to 13 fms.	—	—	age.
Genoa .....	Deep water ..	6 to 10 fms.	—	—	Avamporto.
	10 to 7 fms.	4½ to 6 fms.	—	—	Porto.
Leghorn .....	5½ to 10 fms.	5 to 9 fms.	—	—	Rade.
	30 to 42 feet	20 to 30 feet	—	—	Avamporto.
Marseille .....	Deep water ..	14 to 18 fms.	—	—	Rade de
	10 fms. ....	14 to 3½ fms.	—	—	Northern-
	5½ to 4½ fms.		—	—	entrance.
Naples .....	Deep water ..	10 to 11 fms.	—	—	South en-
	Deep water ..	7 to 14 fms.	—	—	trance. } Ports de
					Rada di Sta. Lucia. Avamporto.
Savona .....	4½ fms. ....	4½ to 4½ fms.	—	—	
Spezia .....	6 to 8 fms. ..	3 to 7 fms.	—	—	
Taranto .....	Deep water ..	6 to 14 fms.	—	—	Mar Grande.
Toulon .....	Deep water ..	5½ to 13 fms.	—	—	

## APPENDIX III.

PLACE—MARSEILLE. OBS.  $\Delta$  LAT.  $43^{\circ} 18' N$ , LONG.  $5^{\circ} 23' E$ . Height above mean sea level, 246 feet.  
 METEOROLOGICAL TABLE COMPILED FROM 25 TO 50 YEARS' OBSERVATIONS (CHIEFLY 1881—1905).

MONTH.	BAROMETRIC. Reduced to 32° F., mean sea level, and Lat. 45°.						AIR TEMPERATURE.						Relative humidity.		RAIN.			WIND.										Gales, No. of days.		Fog, No. of days.					
	Mean.		Absolute.		For month.	Mean.		Absolute.		Range.	Range.		Total fall.	No. of days.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from										N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
	Ins.	Range.	Ins.	Range.		Min.	Max.	Min.	Max.		Min.	Max.					Min.	Max.																	
																			Ins.	Range.	Min.	Max.	Min.	Max.	Min.	Max.									
January	Ins.	Range.	Ins.	Range.	For month.	Min.	Max.	Min.	Max.	Range.	Min.	Max.	Range.	Min.	Max.	Ins.	9	1-82	4	1	6	6	3	1	1	2	10	1	—	—					
February	—	30-06	—	30-78	29-06	1-72	43	53	36	17	69	14	55	72	—	1-83	8	1-80	4	1	5	5	3	1	1	3	9	0	—	—					
March	—	30-02	—	30-69	28-90	1-79	45	56	37	19	71	18	53	69	—	1-32	8	1-97	4	1	4	4	3	1	3	4	10	1	—	—					
April	—	29-03	—	30-52	28-88	1-64	49	59	40	19	79	20	59	65	—	1-59	8	1-93	4	0	3	3	4	2	3	5	9	1	—	—					
May	—	29-09	—	30-46	29-17	1-29	55	66	45	21	84	29	55	65	—	1-82	9	2-86	4	1	3	3	3	2	4	6	8	1	—	—					
June	—	29-05	—	30-38	29-14	1-24	61	72	50	22	93	34	59	65	—	1-65	8	1-77	4	0	3	2	2	2	5	7	8	1	—	—					
July	—	29-08	—	30-28	29-39	0-89	68	78	57	21	94	45	49	65	—	1-17	6	4-10	4	0	3	2	2	2	5	7	9	1	—	—					
August	—	30-00	—	30-26	29-60	0-66	72	84	61	23	100	47	53	62	—	0-72	4	2-86	3	0	4	2	2	2	5	7	8	1	—	—					
September	—	30-01	—	30-32	29-52	0-80	71	82	60	22	95	48	47	65	—	0-87	4	3-02	3	0	5	3	3	1	4	6	7	1	—	—					
October	—	30-02	—	30-41	29-49	0-92	66	77	56	21	92	41	51	71	—	1-88	7	8-72	4	0	6	4	3	2	2	4	9	1	—	—					
November	—	29-08	—	30-53	29-21	1-32	58	67	49	18	82	29	53	74	—	2-62	10	3-77	3	1	7	5	3	1	1	3	8	1	—	—					
December	—	30-00	—	30-59	28-95	1-64	50	60	43	17	76	21	55	76	—	2-26	9	3-57	3	1	7	5	3	0	1	2	11	1	—	—					
	—	29-09	—	30-60	29-06	1-54	44	53	37	16	70	15	55	73	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—					
Means	—	29-09	—	—	—	—	57	67	48	19	—	—	—	69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Totals	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Absolute values	—	—	—	30-78	28-88	1-90	—	—	—	—	100	14	86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
No. of years' obs.	35	25					50	25					25					25										25		25					

Authorities :—"Annales du Bureau Central Météorologique de France."

Buchan's "Challenger" Report.

Meteorological Office,  
November, 1913.

PLACE—AJACCIO. OBS.  $\Delta$  LAT.  $41^{\circ} 55' N.$ , LONG.,  $8^{\circ} 44' E.$  Height above mean sea level, 53 feet.  
 METEOROLOGICAL TABLE COMPILED FROM 7 TO 20 YEARS' OBSERVATIONS (CHIEFLY 1870—1893).

MONTH	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.				AIR TEMPERATURE.				Relative humidity. (Lond amount, Scale 0 to 10.		RAIN.		WIND.								Gales, No. of days.	Fog, No. of days.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Mean.		Absolute		Mean.		Absolute.		For month.	Range.		Total fall.	No. of days.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	For month.	Daily range.	Max.	Min.	Range.	Max.	Min.	Range.		°	°					N.	N.E.	E.	S.E.	S.	S.W.		W.	N.W.	Calm.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
											Ins.														Ins.	Ins.	Ins.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
January	Ins.	Ins.	Ins.	Ins.	Ins.	°	°	°	48	56	41	15	72	28	44	82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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MONTH	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.				AIR TEMPERATURE.						Relative humidity. Scale 0 to 10.			RAIN.			WIND.										Fog. No. of days.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Mean		Absolute		Mean.			Absolute.			Range.	No. of days.	Total fall.	No. of days.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Daily range.		For month.	Ins.	Min.	Range.	Max.	Min.	Range.	Max.							Min.	Range.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Calm.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°

Authority:—Annali dell' Ufficio Centrale Meteorologico e Geodinamico Italiano.

Meteorological Office,  
November, 1913.

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 43°.						AIR TEMPERATURE.						Relative humidity. Scale 0 to 10.		RAIN.			WIND.									Gales. No. of days.	Fog. No. of days.						
	Mean.		Absolute.		Mean.		Absolute.		For month.	Range.		Range.		Total fall.	No. of days.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from																
	For month.	Daily range.	Max.	Min.	Ins.	Range.	Max.	Min.		Ins.	Range.	Max.	Min.					Ins.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.			Calm.					
January	-	30-02	-	30-84	28-89	1-95	46	50	38	12	66	20	46	68	5	2-79	10	3-52	Ins.	-	2	15	8	1	1	1	2	1	0	-	-			
February	-	30-00	-	30-68	28-91	1-77	47	54	40	14	68	22	46	67	5	2-38	9	1-58	-	-	1	9	6	1	2	3	4	2	0	-	-			
March	-	29-91	-	30-55	29-19	1-36	51	58	44	14	79	28	51	65	6	2-99	10	1-50	-	-	2	7	5	1	3	4	6	3	0	-	-			
April	-	29-85	-	30-48	29-13	1-35	57	64	49	15	84	32	52	66	6	2-46	9	1-74	-	-	2	5	3	2	4	4	7	3	0	-	-			
May	-	29-92	-	30-37	29-17	1-20	64	71	55	16	91	42	49	64	6	2-26	8	1-72	-	-	2	5	2	1	3	5	9	4	0	-	-			
June	-	29-95	-	30-27	29-45	0-82	71	78	62	16	94	46	48	63	5	1-69	6	4-29	-	-	1	3	2	1	3	6	10	4	0	-	-			
July	-	29-95	-	30-30	29-54	0-76	76	83	66	17	98	54	44	61	3	0-99	3	3-15	-	-	2	2	1	1	3	6	11	5	0	-	-			
August	-	29-95	-	30-29	29-45	0-74	75	82	66	16	97	51	46	62	3	1-52	4	4-84	-	-	2	4	1	1	3	5	11	4	0	-	-			
September	-	29-99	-	30-41	29-33	1-08	70	77	62	15	92	41	51	65	4	3-26	7	3-74	-	-	2	6	3	1	2	4	8	4	0	-	-			
October	-	29-95	-	30-49	29-25	1-24	62	68	54	14	84	34	50	68	6	5-77	11	3-66	-	-	2	8	5	1	4	4	5	2	0	-	-			
November	-	30-01	-	30-57	29-03	1-54	53	60	47	13	73	30	43	69	6	4-67	12	2-52	-	-	2	12	6	2	2	2	3	1	0	-	-			
December	-	30-01	-	30-69	29-05	1-64	47	52	41	11	71	22	39	71	6	3-96	12	1-71	-	-	2	14	7	1	1	2	3	1	0	-	-			
Means	-	29-96	-	-	-	-	60	66	52	14	-	-	-	66	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Totals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34-74	101	-	-	-	22	90	49	14	31	46	79	34	0	-	-	-		
Absolute values	-	-	-	30-84	28-89	1-95	-	-	-	-	98	20	78	-	-	-	-	4-84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
No. of years' obs.	-	20	1879-1898	20	1879-1898	16	1866-1894	34	39	20	48	20	1879-1894	39	20	48	20	1879-1894	20	1879-1894	20	1866-1894	20	1879-1894	20	1879-1894	20	1879-1898	20	1879-1898	20	1879-1898	20	1879-1898

Authority :—Annali dell' Ufficio Centrale Meteorologico e Geodinamico Italiano.

Meteorological Office,  
November, 1913.

PLACE—NAPLES. OBS.  $\Delta$  LAT.  $40^{\circ} 50' N.$ , LONG.  $14^{\circ} 16' E.$  Height above mean sea level, 479 feet.  
METEOROLOGICAL TABLE COMPILED FROM 20—35 YEARS' OBSERVATIONS (1866—1900).

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.				AIR TEMPERATURE.						Relative humidity.		RAIN.			WIND.								Fog, No. of days.							
	Mean.		Absolute.		Mean.		Absolute.		Range.		Range.		Total fall.	No. of days.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from														
	For month.	Daily range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	N.					N.E.	E.	S.E.	S.W.	W.	N.W.	Calm.								
January	Ins.	Ins.	Ins.	Ins.	°	°	°	°	°	°	°	°	Ins.	Ins.	12	2-24	—	6	8	4	1	2	4	3	3	—	7	—			
February	30-03	—	30-73	29-10	1-63	47	52	43	9	64	24	40	72	5	3-84	12	2-24	—	—	—	—	—	—	—	—	—	—	—			
March	30-04	—	30-60	29-16	1-44	48	54	44	10	64	24	40	71	5	2-49	10	1-65	—	4	6	4	1	2	5	3	3	—	5	—		
April	29-92	—	30-54	29-03	1-51	51	57	46	11	72	27	45	69	5	2-88	12	2-98	—	3	5	4	2	2	7	5	3	—	4	—		
May	29-91	—	30-47	29-12	1-35	57	63	51	12	79	37	42	70	6	2-98	12	2-86	—	3	3	4	2	3	7	5	3	—	5	—		
June	29-95	—	30-33	29-29	1-04	64	71	58	13	91	42	49	67	5	2-10	8	2-06	—	3	3	3	2	4	7	6	3	—	4	—		
July	29-98	—	30-34	29-50	0-84	70	78	64	14	92	50	42	67	3	1-25	6	2-33	—	2	3	3	2	3	8	6	3	—	3	—		
August	29-97	—	30-26	29-59	0-67	75	83	69	14	96	56	40	63	2	0-75	3	2-48	—	2	3	3	2	3	9	6	3	—	4	—		
September	29-98	—	30-28	29-56	0-72	75	83	69	14	99	56	43	64	2	0-94	4	1-99	—	2	3	3	2	3	8	7	3	—	3	—		
October	30-02	—	30-39	29-30	1-09	71	78	65	13	93	48	45	68	3	2-74	7	2-67	—	3	4	3	2	2	9	4	3	—	4	—		
November	30-01	—	30-48	29-16	1-32	63	69	58	11	87	38	51	72	5	4-95	12	2-63	—	4	5	3	3	3	6	4	3	—	3	—		
December	30-01	—	30-66	29-16	1-50	55	60	51	9	73	31	42	73	5	4-42	13	2-72	—	6	6	4	1	2	5	3	3	—	4	—		
December	30-00	—	30-63	29-21	1-42	49	53	45	8	68	28	40	73	5	4-75	14	3-63	—	7	7	3	1	2	4	3	4	—	4	—		
Means	29-99	—	—	—	—	60	67	55	12	—	—	—	69	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Totals	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34-00	113	—	—	45	56	41	21	31	79	55	37	—	—	—		
Absolute values	—	—	30-73	29-03	1-70	—	—	—	—	99	24	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
No. of years' obs.	35										27										35										20

Authority:—"Sul Clima di Napoli" (V. Alberti.)

Meteorological Office,  
November, 1913.

PLACE—GALLIOLI. OBS.  $\Delta$  LAT.  $40^{\circ} 4' N$ , LONG.  $18^{\circ} 1' E$ . Height above mean sea level, 93 feet.  
METEOROLOGICAL TABLE COMPILED FROM 6 TO 26 YEARS' OBSERVATIONS.

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.					AIR TEMPERATURE.								Relative humidity. Scale 0 to 10.		RAIN.			WIND.								Gales, No. of days.	Fog, No. of days.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Mean.		Absolute.			Mean.				Absolute.				Cloud amount. Scale 0 to 10.	RAIN.		WIND.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	For month.	Daily range.	Max.	Min.	Range.	Ins.	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°			°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°

Authority :—"Annali dell' Ufficio Centrale Meteorologico e Geodinamico Italiano."

Meteorological Office,  
November, 1913.



APPENDIX IV.  

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**Place where abnormal magnetic attraction has been  
observed.**

Magnetic disturbance has been observed in the vicinity of Capo  
Calamita, Isola d'Elba.

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